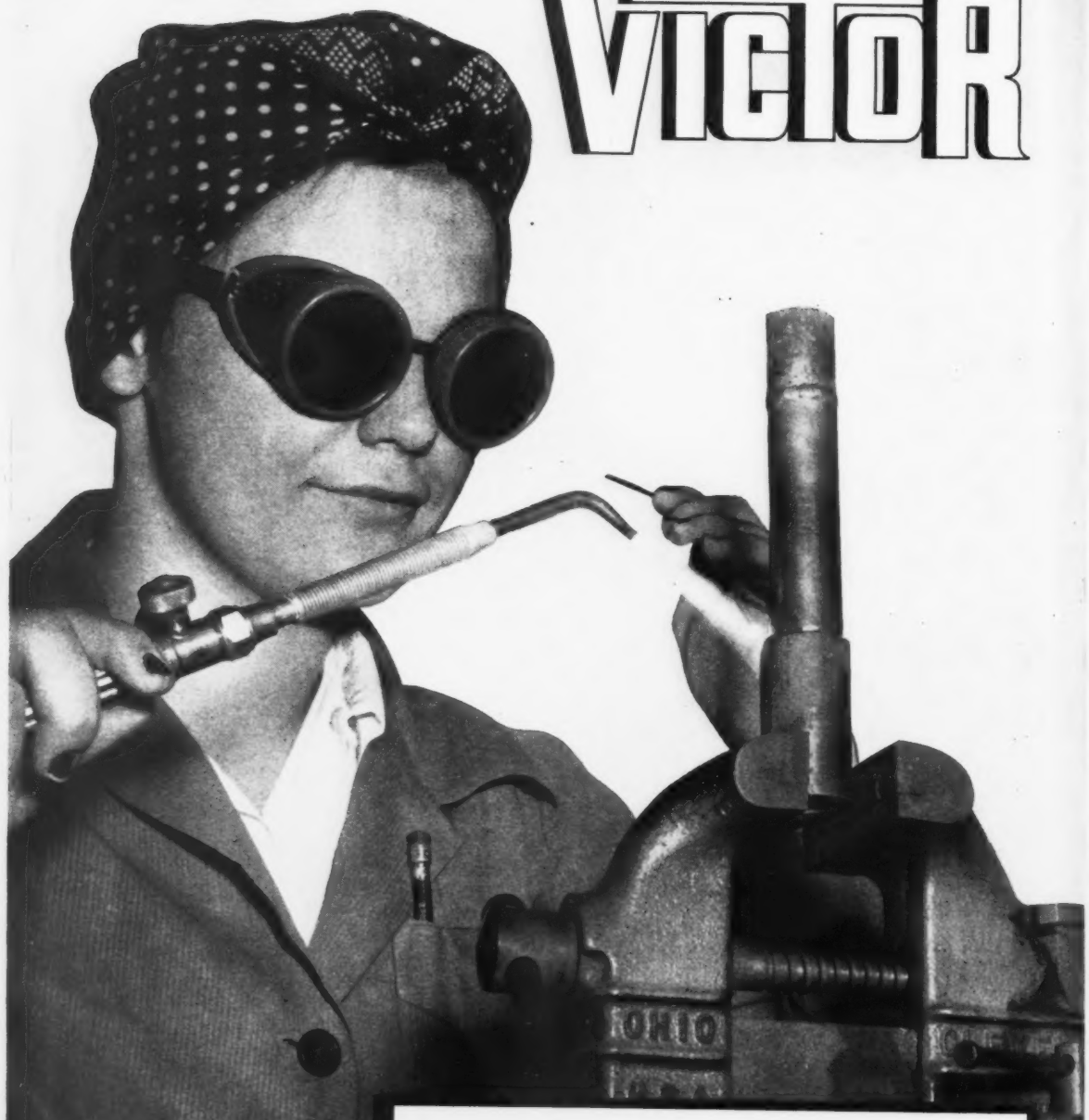
VOLUME VIII
NO. 4

WESTERN INDUSTRY

Twenty-Five Cents

April, 1943

VICTOR



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EDITORIAL COMMENT

(Communications on any subject of interest to our readers are welcomed. If author wishes, his name will not be used. Unsigned contributions will be disregarded.)

The Valley of Decision

ALTHOUGH they probably will be entirely overlooked when the distinguished service medals are awarded for the complete wiping out of 22 Japanese warships and transports in the Bismarck Sea by an American air force, the Aircraft War Production Council in the southern California area ought to get a good share of the credit.

Their members do not encounter the Japanese in person, but they faced and routed, fully a year ago, an even more persistent and treacherous enemy, namely, human selfishness. Every bit of information that one aircraft manufacturer had, they made available to all the rest at a moment's notice whenever needed. If one manufacturer had a problem he could not solve, the rest supplied the answer if they had it, or else pitched in and helped him work it out. If one was lacking in equipment, the others loaned him theirs or else got the job out for him in their own plants.

So practical and successful was it that eastern aircraft manufacturers have set up a council of their own, and the Boeing organization in Seattle has now joined the West Coast group.

The result is appearing in the South Pacific, in North Africa and in Europe, through the supply and performance of planes, the foundation on which the success of our airmen is built.

But if current reports are to be believed, the synthetic rubber situation presents a far different picture, with one company tightly holding the vital information about one portion of the process, a second clutching the secrets of another step, and a third sequestering the knowledge obtained in its own laboratory.

Secrecy surrounds the whole situation, ostensibly the secrecy of protecting vital information. But now the question is beginning to be asked, who are these secrets to be protected from? Can the companies and groups in the synthetic rubber picture fully and frankly say they are protecting them only from the enemy? Or is the primary objective to keep them from each other, for competitive advantage, with producing the maximum amount of synthetic rubber at the earliest possible moment taking second place?

How much good a Synthetic Rubber War Production Council could do! Let us imagine a hypothetical situation like this, where one company would say to another (the reader can supply the individual names, as suits his judgment): "Come on over; let's get all our chemists together and see what the answer to this puzzle is. Tell the rest of them to come along, and be sure to send some people who can say 'yes,' instead of some stooge that has to confess 'I'll have to ask my people about that before I can answer'."

How fast things would start to move! And how quickly the country would start rolling on rubber again—and buying gasoline freely! To ruggedly individualistic producers who have come up the hard way, this may sound like a pollyanna dream of giving away hard-earned property, but it is the way wars are won.

The rubber administrator, Jim Jeffers, has set them all a fine example of laying aside individual interest. Where do our synthetic rubber people stand in a day when we have a long, hard war ahead of us, a war that *must* be won? Why cannot the Synthetic Rubber War Production Council be started right here on the Pacific Coast, where the Aircraft War Production Council had its birth?

WESTERN INDUSTRY

News, Methods, Solutions to Problems of the Principal Manufacturing and Processing Industries of the West

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OUR COVER PICTURE

• Water flooded into this scrollcase just a few hours after workman George Hirst took a last look; a great column of water, 15 feet in diameter, with the force of the Columbia River behind it, throwing its weight of thousands of tons a minute against the blades of a giant water turbine that propels Grand Coulee dam's newest electrical generator

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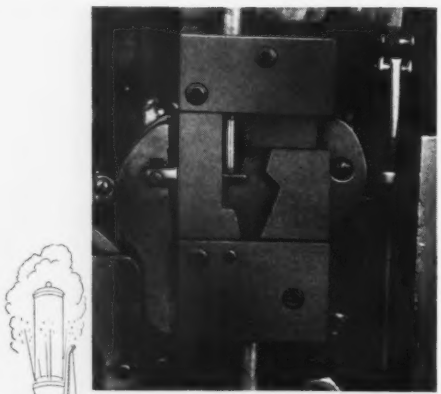
better Methods with mechanical fingers



A connecting link assembly machine which replaces human fingers and eliminates the possibility of error.

Machine designers have done amazing things in multiplying power and speed. Even more astonishing are their achievements in creating machine assemblies which perform work that previously only human fingers could do. Baldwin-Duckworth engineers, in constantly striving to give industry the finest roller chain belts for power transmission and conveying tasks, have themselves designed outstanding machines to make them. This connecting link assembly machine, for example, completely replaces hand-sorting of non-symmetrical pins having a tenon at one end and a cotter pin hole in the other. Its mechanical "fingers" turn end-for-end, and place the pins correctly as they come from the hopper, eliminate all possibility of error, and assure a uniformly assembled finished product.

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Modern P&H Trav-Lifts are saving time and energy and speeding up production in war plants everywhere. They make more efficient fighters of production men in wartime. They cut handling costs any time.

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There is glamor, too, in the careful "beauty salon" treatment of glass at Sylvania. Before acceptance it undergoes 16 different inspections for possible imperfections. It is handled with gloves — to avoid possible contamination from contact with human hands. It is even washed, dried, brushed, and vacuum-cleaned in air-conditioned rooms.

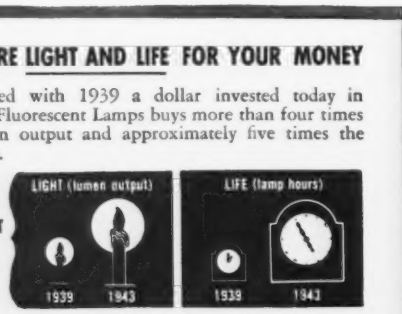
Sylvania "glamor glass," like the development of the "Mercury Bomb" method of precise mercury measurement, is a formula that conserves vital metals for war. But all the material and process changes, made continually at Sylvania, must and do step up fluorescent performance and effect important economies.*

It is because of Sylvania's many years of independent and aggressive research that fluorescent, today the best industrial lighting, is destined to light our homes, offices and stores when Victory is won.

To obtain research dividends of more light output, longer life and uniform color, specify Sylvania Fluorescent Lamps — each one better than the last — for replacements.

FAR MORE LIGHT AND LIFE FOR YOUR MONEY

*Compared with 1939 a dollar invested today in Sylvania Fluorescent Lamps buys more than four times the lumen output and approximately five times the lamp life.



(Based on decreasing price and increasing efficiency and durability of Sylvania 40-Watt White Fluorescent Lamp)

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The early Egyptians made glass by an indiscriminate choice of materials and primitive melting pots. Later came the more careful, but tedious process of making glass with pontils.

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The unexcelled value of Latchford-Marble glass containers for the food, wine, brewing, bottling, liquor, chemical and allied industries is based on 25 years of experience in the manufacture of high quality glass.

Latchford-Marble glass containers have long been a popular choice in the food, wine, brewing, bottling and chemical industries. Now they are even more in demand to alleviate the packaging shortages in many new and vitally important industries. Millions strong, Latchford-Marble packaging soldiers march off to Victory every day in the Battle of the Bottlenecks. Glass containers that will deliver the goods, conveniently and economically, to any front, for any industry. Units of glass that are made the right way—the Latchford-Marble way.

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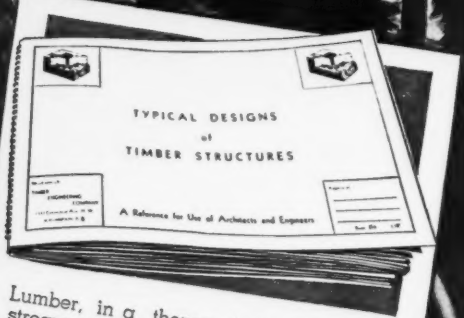
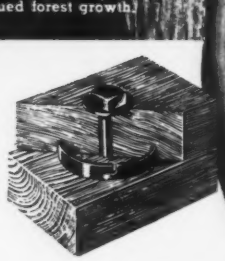


Lumber, in a thousand different forms, streams to the fighting fronts of the world. At home, wood replaces metal in thousands of heavy duty war structures—made possible by the TECO Connector System of Timber Engineering. This FREE Reference Book shows details of 45 typical timber designs for roof trusses, bridges, towers, tanks, hangars, and other structures for the war today and the peace tomorrow. Available to practicing engineers and architects. *Write* for it today—using your firm letterhead.



The TECO Ring Connector spreads the load on a timber joint over practically the entire cross-section of the wood . . . brings the full structural strength of lumber into play.

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WOOD GOES TO WAR — An MGM Technicolor short by James A. Fitzpatrick. Ask your theater when you can see it.

Spotlight on the NEWS

WESTERN INDUSTRY
FOR APRIL, 1943

VOLUME VIII NUMBER 4

From An Easterner's Lips

INDUSTRIAL advantages of the West that seem like "blue sky" to many easterners when coming from the lips of a Westerner were voluntarily offered as facts favoring the industrialization of the West by A. W. Robertson of Pittsburgh, chairman of the board for Westinghouse, when interviewed by newspaper and magazine representatives in San Francisco March 3.

"You can do so much work out of doors here and thus avoid considerable expense. It keeps the costs down," he said. "A large number of the people coming out here to work in your war industries will want to stay because of your appealing climate.

"It is inconceivable that you will always produce aluminum here, ship it east for rolling and then bring it back here to put on airplanes. Practically all your factories on the West Coast are new, because you did not have many before this war period began, and they certainly make us easterners green with envy."

Westinghouse is spreading out its contracts so that its Pacific Coast factories get their share, he reported.

Coast Shipping Tripled

With 35 per cent of the entire offshore freight traffic of the country going through Pacific Coast ports at the present time, compared to 12 per cent a year ago, and with still further tonnage increases in prospect, the railroads and shippers advisory boards are exploring every possibility of eliminating delays at the ports and of building up the supply of rolling stock through heavier loading of cars. Shippers throughout the nation created 275,000 extra cars last year by heavier loading and faster turn-around.

One obstacle that seems to be worse on the Pacific Coast than anywhere else in the country is the week-end slow-up caused by the practice of shippers and public warehouses not receiving freight on Saturdays and Sundays. Some progress has been made in changing this custom, but union agreements and shortage of men are hindrances to what eventually will apparently have to come about, namely, a seven-day week on all shipping platforms.

The record of private shippers in utilizing cars to the utmost and in unloading cars promptly has not been matched by the military and government services, although railroad men consider the services have done a fine job and the shortcomings are not serious. Shippers advisory boards, however, feel there is still room for improvement and intend to turn on the heat wherever possible.

Swallowing a Bitter Pill

For all the clatter the unions have made over the aircraft wage decision, in the end they will probably swallow the War Labor Board's ruling, even if the scale is far less than might have been granted before Congress voted stabilization last fall. The vigorous dissent of Dean Wayne Morse of the University of Oregon, one of the public members, is likely to make them feel they have a friend at court.

The War Production Board's desire for a broad general policy for the industry is the main cause for the exasperating delay in issuing the decision. And had it not stepped in, each craft would have gotten a substantial advance as each agreement expired in turn, because it is generally reported that the employers would have paid even more last fall than Paul Porter originally recommended.

By the time the Porter studies were completed and digested, Congress has voted wage stabilization, and Porter had to refigure his findings all over again. Small wonder that 250,000 aircraft workers who had wondered for many months whether to hang on where they were in the hope of a better deal or jump to the shipyards were puzzled and angry.

Setting up the regional WLB for the Pacific Coast will probably prevent a recurrence of such a delay. This new body, although only in the tooling-up process, already has handled 1,000 cases in two months. Not bad.

"As Goes San Diego"

"As goes San Diego, so goes the rest of the Coast," is a saying that may rival the historic "As goes Maine, so goes the nation," only this time it relates to manpower situations rather than politics. Because San Diego is the tightest labor market on the Pacific Coast, steps are taken there to relieve the shortage six months ahead of any other city, close observers say. So the news that San Diego city employees are to work four-hour half-shifts in aircraft and shipbuilding plants each evening when their regular jobs are finished is an indication of what may follow elsewhere. Already there are scattered examples of it.

Meanwhile the employment of women steadily increases. State-wide California reports for January show a gain of 11,500 women over December, paralleling a decrease of 7,500 male wage earners.

Unlooked-for Shortage

Burning rubber smells. Some good sources say that when the synthetic rubber plants on the Pacific Coast open there will be a big shortage of chemists and other technicians to operate them. This is also predicted by the CIO International Federation of Architects, Engineers, Chemists, and Technicians, who are ambitiously campaigning for joint management-labor control of the synthetic plants, but are only having spotty success in winning NLRB elections.

• **Women are taking over more and more of the production of the Boeing flying fortresses** *"Photo of Office of War Information"*

DAY CARE — Frees War Job Mothers

Washington Cities Find Methods to Provide For Young Children in Absence of Parents

IF EVERY community had a day-care nursery like the one in the Laurelhurst district of Seattle pictured opposite, a substantial part of the problem of finding women to replace men would disappear. It is one of the means for making it possible for mothers who must earn money or who are actuated by patriotic motives, to accept employment in war industries.

Hours of work, size of the family, age of the children and availability of facilities for suitable care of them, all enter into the question of employment of mothers. Apparently the nearest approach to a final answer is the one discovered in England, where the adoption of part-time work, such as five-hour shifts for women, increased their employment and reduced absenteeism and employee turnover.

Meanwhile the problem is being attacked in various Western localities. In the State of Washington, the activities of the Children in Wartime Committee have become increasingly large. A year ago there was talk of training women and recruiting them from the ranks of housewives to take men's jobs in industry and offices and today in war industry of this area women workers are found in nearly equal number to men and daily the feminine ranks are swelling. It has been authoritatively reported that the personnel of the Boeing Aircraft Company in Seattle will be 70 per cent women in 1944.

The whole program of child care in wartime stems from OCD headquarters and other federal agencies in Washington, D. C., and then coordinated by state and local defense councils. In Washington state the program has been further integrated through the cooperation of the public schools, state social security department, health department, county welfare departments and the U. S. Employment Service.

To appraise properly the problem of what to do with the youngsters of the mother who contributes her efforts to war work outside of her home, a five-phase program has been developed and is functioning. First, the mother is concerned with capable and responsible care for her children from the time she has to leave them in the morning until she returns to them in the evening. If the children are too young for public school they can be placed in nursery schools which have been licensed by the state. If the youngsters are of school age they can be left at schools where before and after school supervision is provided for them. These two activities are administered by the public schools.

Under the supervision of the county welfare departments of the State Department of Social Security is provision for individual care in family day-care homes for children for whom group care is suitable or easily available and for children under two years of age.

Housekeeping service also is included as part of the community day care program as

well as an information and counselling service by social workers who are familiar with all community resources and who can assist working mothers to make satisfactory plans for the care of their children.

"Home life is essential for the best development of children," points out the Children in Wartime Committee of the Washington State Defense Council and to that end it has been working with industry in order to take into consideration the particular problems of working mothers and consultation services for these problems have been set up in industries where women and mothers are employed.

"If industry has to take women, it has to take them with their problems and work with them," says Mrs. Helen C. Shank, executive secretary of the committee. "This state's industry can get the womanpower it needs without neglect of children."

The committee has sought to arrange employment schedules of mothers so that they can work at such hours and on such shifts as will cause the least disruption in their family life. Already the Navy has asked that Navy Yard employment of mothers on swing shifts or night shifts be avoided so that normal home life may be preserved for the children as nearly as is possible under war circumstances.

This was embodied in a bulletin prepared by a conference of Navy officials and a woman's committee, and sent out by Commander Manock to industry in an endeavor to familiarize employers with the questions involved in the employment of women.

Surveys by Defense Council block leaders are being undertaken to ascertain the need for care of children and later a plan on which a state-wide program can be based may be developed.

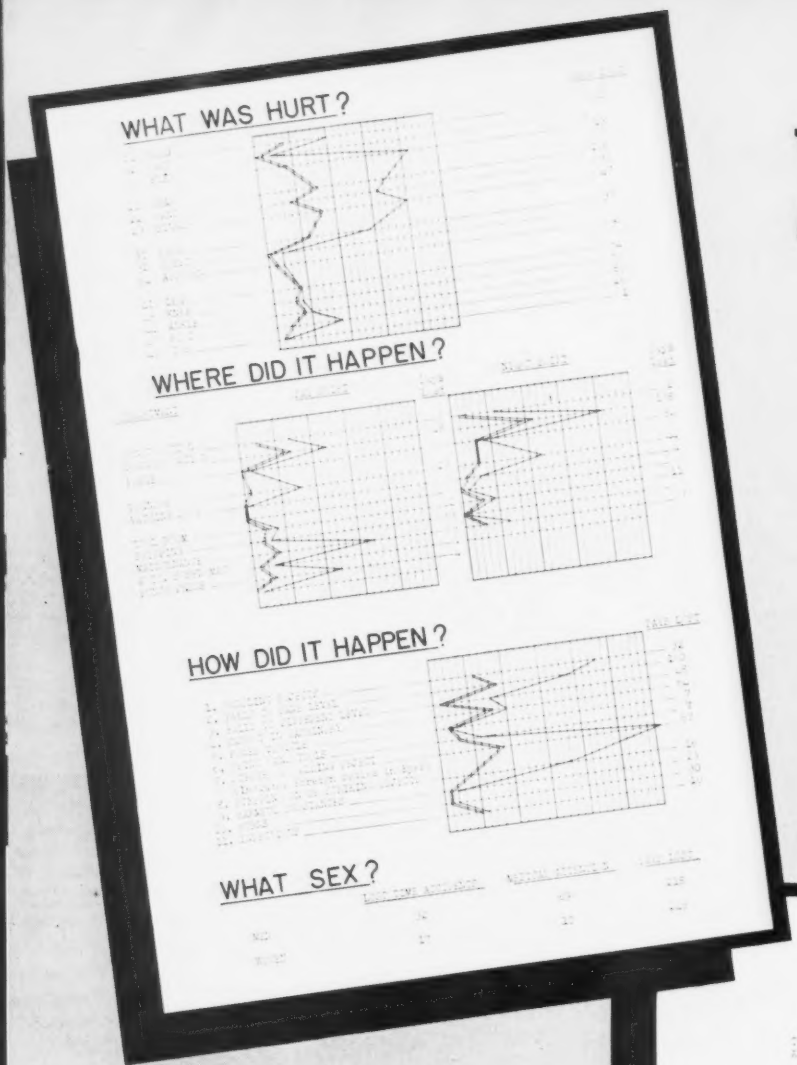
An allocation from the President's Fund has been made by the State of Washington to plan and develop programs for the care of children of working mothers. Through this fund a staff has been employed by the State Department of Social Security, and staffs also have been made available in Seattle, Tacoma, Bremerton, Vancouver, and Spokane.

Application has been made for Lanham Act funds providing establishment of facilities for nursery and extended day schools in an amount of approximately a half million dollars in the State of Washington. Cities and towns where such schools are in operation and where the same facilities will be increased include Seattle, Vancouver, Camas, Kirkland, Bremerton, Tacoma, Spokane, Millwood, Everett, Renton, and Bothell.

Lanham Act funds in the State of Utah, $112,000 have been allocated to the Salt Lake City Board of Education. These funds will be used to help provide centers for the care of children between the ages of two and six whose mothers are working in activities essential to the war activity and to extend the regular school program to care for school age children before or after school hours when there is no adult at home to provide necessary supervision.

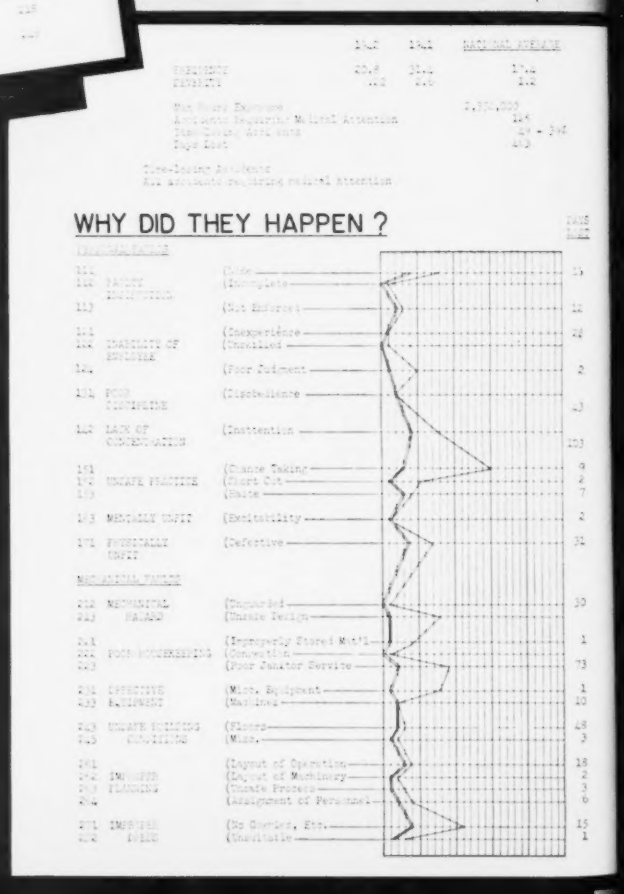
Several other school districts in critical areas in Utah have also applied for funds to develop similar programs which may leave women, who are trained and able but who have young children, more free to enter industry where they are so desperately needed.

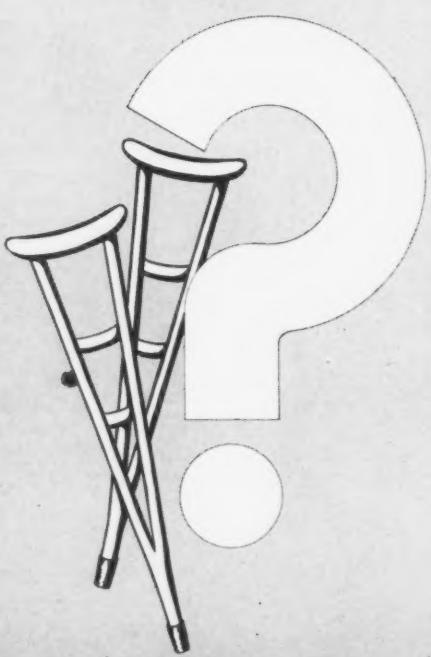
• Laurelhurst day nursery enables some Seattle mothers to earn their living in war jobs



THIS CHARTING MAY HELP YOU

Flatten out these peaks caused by unsafe practices, absence of job instruction training, need of goggles or other negligence. Start constructive correctives. Tackle first things first and improve your insurance rating





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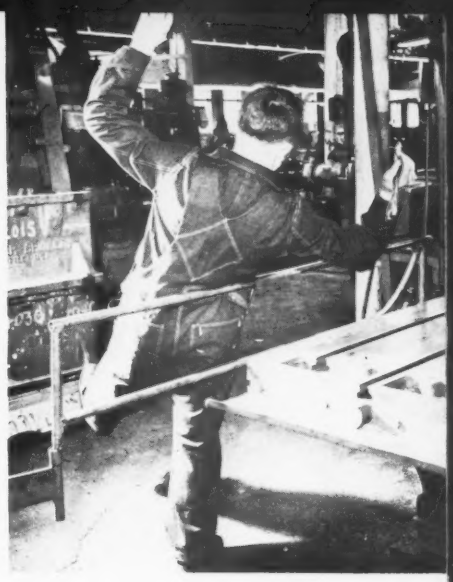
Western Canneryman Analyzes Accidents

Vital Necessity, Because Man-Hour Losses Greater From This Source Than Any other

By RANDALL TEMBY

On the staff of Schuckl & Co., Sunnyvale, California, one of the largest canning factories in the United States, Mr. Temby is an industrial engineer who also includes safety as one of his functions, and is a "$1 a year" safety engineer for the National Committee for Conservation of Manpower.



INDUSTRIAL injury should not be minimized as an obstacle in our path to victory in all this talk of absenteeism as a serious threat to all-out war production.

The fact that injuries to industrial workers, both on and off the job, resulted in a man hour loss equivalent to that required to operate *every* shipyard and plane plant in the country 54 days in 1942, was presented forcefully in a recent editorial in the Los Angeles Times.

This problem of preventing industrial injuries, though greatly increased, is no different today than it was in the past, but rapid expansion of most plants has demanded more effective methods of control. The same principles of scientific management that have proven themselves in the field of production will also succeed in producing a low accident frequency.

Management's problem in reducing the number of injuries consists of recognition of the value of accident prevention, setting up the organization to do the job and an immediate and complete follow-up of the results.

Value: When the value of accident prevention is brought up, it usually results in sufficient incentive to handle the remaining problems with the dispatch that has made American industry famous. What data must we gather to evaluate the need? Well, these two should give us a start:

1. Cost of claims for wage compensation and medical expense, whether paid directly by you or by your compensation insurance carrier.
2. The working days lost by injured employees.

From a purely patriotic standpoint, what effect did the lost time have on your all-out war production? If replacements were made, almost immediately what difficulty did the personnel department have in doing so? Were the replacements badly needed elsewhere? Your personnel man can answer these questions.

From a more selfish angle: In all probability your product absorbed a cost *four* times as great as the amount paid for wage compensation and medical expense (Item 1 above). This 4 to 1* ratio is an average of indirect expense (established in many test cases in widely varying industries) to direct cost.

We can protect ourselves against the latter by means of insurance, but only an effective accident prevention program can have the amount four times as large. Let's not forget, our insurance premiums will also be reduced with a more favorable accident experience. If you would like to roughly check this ratio, look for it in such items as these:

a) Cost of (hard to get) material spoiled or degraded.
b) Cost of supervisor's time and indirect labor.
c) Cost of (hard to get) tools broken.
d) Cost of bringing new (replacement) employee to standard production.
e) Resultant increase of factory burden per unit as result of production delay.

Item "d" above may stagger you when revealed.

Organization: Assuming we have realized the value, it is very likely that the responsibility will be eagerly accepted by top management. This is unquestionably where it belongs. Too often there is a tendency to delegate and forget this function, but a successful prevention program is dependent upon using the same organization used in production. In other words, the men who make the plant go are the men to make it go safely. It is my belief that an enviable accident experience can be realized without any additions to the organization chart.

The function generally recommended to safety committees is education of the members (usually foremen) to enable them to do the job. The committee meetings provide the tools—but they may be used on the job for results.

Larger plants find the services of a full-time safety engineer essential. The safety engineer (a staff man) serves in an advisory capacity to the production organization. The men of the production line organization receive both the credit and the responsibility for a low accident frequency. If you are engaged in war production and wish help in organizing your accident prevention program, you can avail yourself of the services of outstanding men from the larger companies free of charge. Requests or inquiries should be directed to R. E. Donovan, Chief Safety Engineer, Standard Oil Company, San Francisco, California. Mr. Donovan is a member of the National Committee for Conservation of Manpower in War Industries and Regional Director for the Eleven Western States.

Follow-up: The foreman must know not only by the words, but by the actions and follow-up, that top management *is* interested in the safety of its employees, and that it *expects* a good accident record in his department. If such is the case the foreman will be desirous of producing this kind of record. Just calling him "on the carpet" or admonishing him to "be more careful" does not produce the desired results. He must be given help on things he may not understand.

An analysis of the type shown in the illustration will suggest constructive, helpful correctives. Look at it for a moment. Isn't it obvious that Job Instruction Training** will pull in that peak on "faulty instruction," or that a conference on development of safe practice will reduce the number of accidents attributable to "unsafe practice." Likewise the right goggles will prevent the injuries to the "eye." Tackle first things first; pull in the peaks of the curve. Correctives for special problems can be suggested by your insurance carrier or the "National Committee" referred to above.

Set a goal for yourself. Compare your frequency with the national average for *your* industry. The reduction of the injury rate is a challenge to alert management and a *patriotic humane duty*.

**See H. W. Heinrich, "Industrial Accident Prevention," for detail.*

***This training is furnished free by the War Manpower Commission, San Francisco Office — Training Within Industry, 260 California Street.*

SEEKING the key to the future, when carriers will revert to cargo boats, tanks to tractors and bombers to transports, dim outlines of post-war plans are being shaped by nations, united and singly, by states, cities, industries, corporations and individuals, in order that peace will not become another word for chaos, distress, and despair. On the opposite page will be found an analysis of post-war motives, as seen by one of our readers. As there is need for the West to make sure that its individual needs, created by natural barriers and economic laws, will not be submerged, Western Industry has assembled a preliminary list of Western groups, corporations and individuals who have definite post-war plans or have indicated direct interest in the subject.

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A Joint Responsibilty

By FRED G. STEVENOT
President,
Puget Sound Pulp & Lumber Co.

TAKING into account the expressed purposes for which the United Nations are fighting the war, and statements made by recognized spokesmen, "post-war planning" consists of planning for the future welfare and betterment of all people.

That type of planning—planning with that objective—is desirable, regardless of its source. The people of our nation, and of the world as a whole, are interested in and concerned with the results of post-war planning, not with sources.

Economic planning is done by people. Every person has his private interests. This is true of groups and nations as well as of individuals. It is as true of individuals in Government as of those in private enterprise.

Adhering to the principle that we are dealing with the welfare of *all* the people, the best planners will be those who can subordinate their private interests sufficiently to think and plan in terms of the interest of all. Furthermore, it is obvious that only on a give and take basis can the best interests of all be served. It seems, therefore, that post-war planning should be a joint responsibility to employ the principle of check and balances.

Without doubt, the thinkers and spokesmen for private enterprise should participate in post-war planning to unlimited degree. But since it is an international task, whatever plans emerge, will be made effective through government instrumentalities.

Now,here is a thought, obvious enough, but evidently overlooked by most pressure groups in their present day struggles—a thought applicable not only today, but one which projects itself into the more lofty realms of post-war planning. Under the ideal system of private enterprise, individual opportunity is measured by results contributed by the individual; there is no other limitation as to how far he can go in improving his all-around position.

Expressed in terms of money, affluence, security, or any worthwhile things that money can buy, the more an individual contributes or accomplishes, the better off he becomes. This is true of wage-earning groups as it is of management, or worthwhile invention or chemical discovery. Thus, it is possible and should by the practice, for any group or class to contribute to betterment and profit thereby. On the other hand, merely increasing the rate of compensation for a given operation, without improving processes, accomplishes little, if anything, for the individual or group of which he is a member. It only changes the cost-of-living basis, keeps things in a continuous state of maladjustment and struggle for adjustment.

Sound post-war planning should address itself to equalization of opportunity in making the most of the world's resources of materials and manpower. Then, the door to individual opportunity should be by the individual's contribution to better living, either singly or as a member of labor, agriculture, or any other group, rather than through pressure which merely reshuffles conditions without producing better conditions for all.

This possibly idealistic state of affairs can only be realized, or achieved in substantial measure, through the processes of private enterprise. The war already has demonstrated this. Faced with our supreme national task, such measure of accomplishment as we have achieved has been through our system of private industry.

Post-war planning, to achieve the fights and aims of all people, should be that kind of planning in which government regulation aids rather than retards private enterprise in accomplishing its utmost for a better world.

Preliminary Western post-war planning list—additional names welcomed.

CALIFORNIA

American Trust Company, 464 California Street, San Francisco. L. E. Graybiel.

California State Chamber of Commerce, 350 Bush Street, San Francisco. Asa V. Call, chairman, Post-War Planning Committee. Industrial Section, Southern Council, 950 Wilshire Blvd., Los Angeles.

Columbia Steel Co., 235 Montgomery Street, San Francisco.

Committee on Economic Policy, U. S. Chamber of Commerce. California members: Frazier Bailey, Matson Navigation Company, San Francisco. William C. Mullendore, Southern California Edison Co., Los Angeles.

Crown Zellerbach Corporation, 343 Sansome St., San Francisco.

Douglas Aircraft Co., Santa Monica.

Federal Reserve Bank, Sansome and Sacramento streets, San Francisco. R. J. Miller.

Fuller, W. P., Jr., 301 Mission St., San Francisco. Regional representative, Committee for Economic Development.

General Electric Co., 235 Montgomery St., San Francisco. O. A. Gustafson.

Giannini Foundation of Agricultural Economics, University of California. Berkeley. Dr. Mary Benedict.

Industrial West Foundation, 111 Sutter St., San Francisco. Geo. W. Malone, managing director.

Interim Committee on Economic Planning, California Senate. Parry Walsh, committee staff director, State Bldg., San Francisco.

Joshua Hendy Iron Works, Sunnyvale. L. T. McGuire.

Kaiser Corporation, Latham Square Bldg., Oakland. C. A. Day.

Lockheed Aircraft Co., Burbank. J. V. Sheehan, manager, industrial research division.

Los Angeles Bureau of Power & Light, Los Angeles.

Los Angeles Chamber of Commerce, 1151 S. Broadway, Los Angeles. Carleton Tibbetts, chairman, Post-War Planning Committee.

Mills, James N., 607 West Rosa Road, San Gabriel.

National Resources Planning Board, Dr. Baldwin M. Woods, regional planning officer, University of California, Berkeley.

Oakland Chamber of Commerce, Oakland. Irving H. Kahn, chairman, Post-War Development Committee.

Pacific Gas & Electric Co., 245 Market St., San Francisco. W. G. Vincent.

Pacific Southwest Academy, 2324 S. Figueroa St., Los Angeles. Raymond G. McKelvie, president.

Sacramento Chamber of Commerce, 917 7th St., Sacramento. Claude Coffing, chairman, Post-War Planning Board.

San Diego Chamber of Commerce, San Diego. Philip L. Gildred, chairman, Temporary Planning Committee.

San Francisco Chamber of Commerce, 333 Pine St., San Francisco. Ernest Ingold, president.

Security-First National Bank, 561 S. Spring St., Los Angeles. Mr. Smith.

Southern California Edison Co., Edison Bldg., Los Angeles. Will H. Fischer, vice-president.

Southern Pacific Co., 65 Market Street, San Francisco. C. D. Lafferty, industrial agent.

Standard Oil Co., 225 Bush Street, San Francisco.

Standard Stations, Inc., 225 Bush St., San Francisco. H. R. McFeeters, asst. manager.

Stanford University, Professor Eugene Grant, Civil Engineering Department; Paul Holden, Stanford School of Business.

State Planning Board, Professor Samuel M. May, chairman, University of California, Berkeley.

University of Southern California, Los Angeles. Thurston A. Ross, Bureau of Business Research.

IDAHO

Idaho State Planning Board, Boise. J. D. Wood.

MONTANA

Montana State Planning Board, Helena. Fred E. Buck.

OREGON

National Resources Planning Board, Federal Court House, Portland. R. F. Bessey, Counselor.

Northwest Regional Council, Corbett Bldg., Portland. J. B. Appleton, Director.

Oregon Economic Council, First National Bank, Portland. E. B. MacNaughton.

Pacific Northwest War Industries Commission. Ivan Bloch, chairman, c/o Bonneville Power Administration, Guardian Bldg., Portland.

Portland General Electric Co., Electric Bldg., Portland. Melvin Arnold.

U. S. Department of Agriculture, Pacific Northwest Committee for Post-War Planning, Federal Court House, Portland. S. N. Wyckoff, chairman.

Portland Civic Post - War Planning Committee. David Simpson, Portland Chamber of Commerce, chairman.

UTAH

Bureau of Economic Research, University of Utah, Salt Lake City. J. R. Mahoney, Director.

Federal Works Agency, Salt Lake City. Rex Nicholson, regional director.

WASHINGTON

Committee on Economic Policy, U. S. Chamber of Commerce. Washington member: J. D. Tennant, Long-Bell Lumber Co., Washington.

Committee for Economic Development (national industry organization). Eric Johnston, Brown-Johnston Co., Spokane, Western member.

Electrical Products Consolidated, 1000 Virginia St., Seattle. G. F. Comstock, president.

Inland Empire Industrial Research, Inc., 417 Peyton Bldg., Spokane. A. A. Kearney, managing engineer.

Washington State Planning Council, Transportation Bldg., Olympia. Pat Hetherton, secretary.

Plastics For Planes; Present and Future

By JOHN K. NORTHROP
President
Northrop Aircraft, Inc., Hawthorne, Calif.
As told to the first West Coast Conference of the Plastics Industry, Los Angeles, Feb. 23, 1943

WITH the enthusiasm of a young industry, some plastics engineers do not concede to metals any part of a plane except perhaps the motor, and not all of that. This is perhaps an extreme viewpoint, but I would hate to go on record against such possibilities at some future date.

At the present time there is, however, a great deal of interest in the suitability of plastic bonded materials for primary structural parts of aircraft. The existing shortage of metals has stimulated a swing to less critical materials, and much investigation of substitutes is now under way.

In many cases I am afraid the aircraft designer regards this as just another headache, and looks forward to the day when it will no longer be necessary. Others, however, feel that the inherent property of low density is a structural advantage which is basic, and not obtainable in any other material field. They look confidently to the research laboratories to cure the ills which have discouraged so many, and stopped entirely some ambitious attempts to substitute plastics for metals.

Very few realize how involved the question is. At first thought it seems easy to select the most suitable material for aircraft structures on the simple premise of strength-to-weight ratio. Unfortunately, the problem is not that simple. We concede the fact that tensile and compressive strength is important, but the ultimate value of a material is based not on one property, but on the integration of all properties.

In comparison with available metals, plastics have definite advantages; and at present, at least, just as definite deficiencies. As mentioned previously, low density gives to the plastics structural superiority in many applications, and particularly in monocoque and semi-monocoque structures where strength against buckling is important. On the other hand, there are some cases where the lower densities of plastics are a disadvantage—where limitation of size is necessary from the standpoint of aerodynamic efficiency, and where design restrictions impose a limitation in overall dimension.

Continuing this comparison, we must consider the important factor of fabrication. In conventional designs weight is necessarily added at joints and fastenings and aerodynamic efficiency is decreased by external riveted construction. Plastics may some day prove to have fabrication advantages, but so far the close control required to obtain a sound cemented joint and the relative brittleness of most of the structural plastics have proven disadvantageous. Also, it is not safe to assume that metal structural design will remain at its present stage of development while the plastics industry catches up and passes on.

Another serious consideration which faces a new structural material is that of uniformity. For example, let us consider sand castings in metal as compared with forgings. Even if the strength of sand castings under ideal conditions is as great as that of forgings, the fact that castings are comparatively lacking in structural uniformity would necessitate their use with a higher factor of safety.

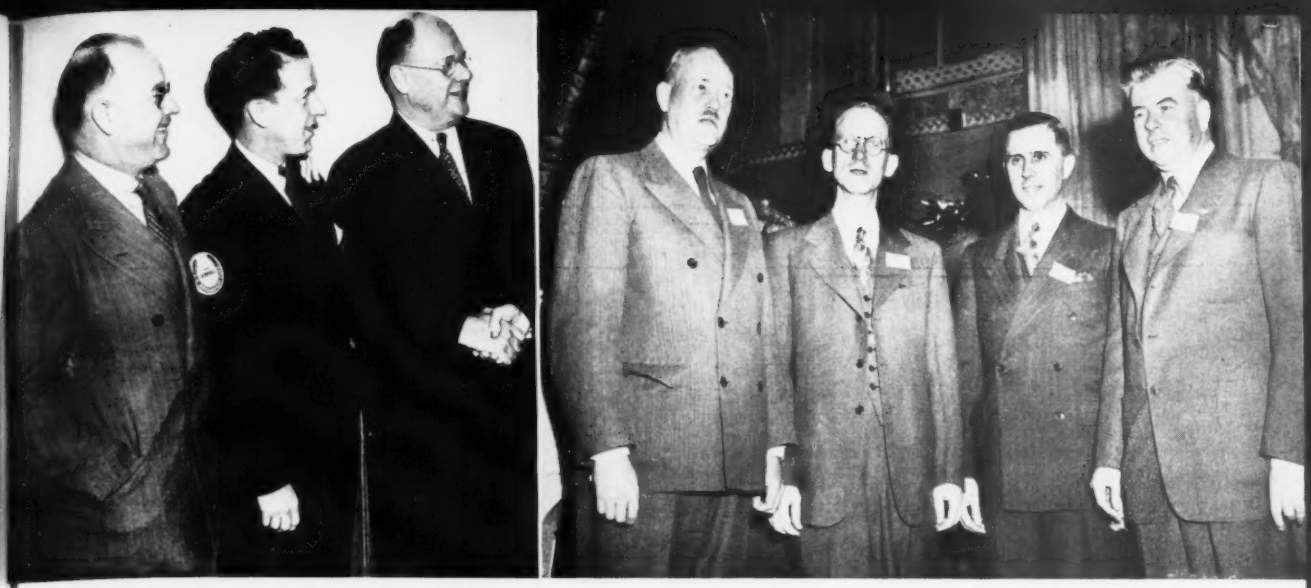
This acts as a weight penalty against their use. In other words, we have to design for the lowest possible strength we may get in actual production. This is where a new material, requiring new manufacturing and fabricating technique, is at a serious disadvantage.

We have to make allowance for the probable difference between the properties of ideal test sections made under laboratory conditions with skilled help, and the complicated shapes we contend with under less favorable conditions with less skilled help in actual production. Usually practical experience is necessary to determine what these allowances must be.

In the case of plastics and plastic cements we must also learn the effects of aging. Sometimes artificial aging will give much of the information required, but we can never be quite sure until tests have been made over a period of time, which is a profound misfortune under present conditions, when time is of utmost value.

Perhaps the greatest enemy to the use of plastics in aircraft structure is the wide temperature range which is encountered under actual flying conditions. Temperatures from −100° to +165°F. break down some plastics and adhesives completely and cause gradual disintegration of others. The lower temperatures make some otherwise superior plastics too brittle, and other use-

• Plastic bombers' noses may point the way for all sorts of post-war things



• PLASTICS LEADERS, at Los Angeles. From left: Ralph Hemphill, chairman executive board, Plastics Industries, Technical Institute, Los Angeles; W. C. Goggin, Dow Chemical Co., Midland, Mich.; Ronald Kinner, Albany, N. Y., president, Society of the Plastics Industry, Inc.; E. F. Lougee, Plastics Industries Technical Institute; Dr. Gordon M. Kline, chief, plastics section, Bureau of Standards, Washington; Frank Carman, chief, plastics and synthetic rubber section, WPB; James D. McDonald, McDonald Mfg. Co., Los Angeles, conference chairman

ful ones become too soft at the higher end of the scale. Practically all are affected to some degree and again the necessary factor of experience rises to the disadvantage of plastics.

We must also provide against dimensional instability under constant load which sometimes causes cold flow and which is aggravated by varying temperatures, especially in the higher range.

Reviewing these considerations, you will see that a new material is penalized with a high factor of safety until we know for certain that it will do the job under the worst possible conditions and over a considerable period of time. Until a comparatively recent date there have been other disadvantages associated with extensive use of plastics for major structural parts. The program of applying the high temperatures and pressures ordinarily required to large and complicated members has been nearly insurmountable. Only recently have developments uncovered a new group of plastics combining interesting physical properties with low pressure setting properties.

Before leaving structural considerations, some mention must be given to the many so-called plastic planes in which synthetic resins have been used as a plywood bond. Except for the adhesives used, these structures are not greatly different in principle from those developed by Lockheed over 20 years ago, where pressure was applied to plywood strips cold-bonded by casein glue, to produce a beautifully molded plywood structural member having compound curvatures and considerable resistance to moisture.

The newer resins are undoubtedly more weather-proof than the first casein glues, but I have sometimes wondered whether they were enough better to warrant all the publicity. I recently had an opportunity to examine a Lockheed-Vega moulded plywood fuselage which was 15 years old, and still in very good physical condition. It would seem that 15 years would be a good life expectancy for any machine, be it automobile, motor boat or airplane. Certainly, obsolescence sets in long before an airplane is 15 years old.

What I have previously said may sound discouraging from the standpoint of a true plastic airplane, but please do not conclude that I think the problems cannot be solved eventually. They are problems of chemical research, and the science of chemistry boasts a history of achievement that should make any intelligent person afraid to say, "it cannot be done." In fact, I believe these problems will be solved in time, and that post-war planes may use structural plastics to a great degree.

So far we have been discussing primary structural parts, but the largest field of plastics in aircraft, to date, and a field that is very attractive, lies in accessories and the thousand and one minor parts of varying importance that go to make up a modern airplane. Their number is legion and

(Concluded on next page)

West Coast Plastic Industry Forges Ahead

(Society of the Plastics Industry, Inc. gives recognition by holding first coast conference in Los Angeles)

By WM. T. CRUSE
Executive Vice-President,
Society of the Plastics Industry, Inc.

THE plastics industry on the Pacific Coast has forged ahead in the war program. In the Pacific Northwest plywood bonded with plastics have been used in many essential ways. Where before plywood had been manufactured with vegetable and animal adhesives, their application was restricted by the limitations of these types of adhesives.

With the adoption of synthetic organic adhesives such as phenolic and urea resins or varnishes, the horizon of possible war applications for plywood was vastly expanded. These adhesives provided the weather and moisture resistance stability which permitted their use in many different places.

For example, plastic-plywood was employed for making concrete forms required in the construction of artillery placements on the island bases acquired under base arrangement from Great Britain. Plastic-plywood has served ideally as a building material in the erection of many rapidly built Army camps. Its use in PT boats and aircraft is well known.

The plastics industry in California was making notable progress before Pearl Harbor. Since, it has grown at a remarkable rate. According to our estimate based on statistical data we assemble, the plastics industry in California has increased in size over 500 per cent in the past three years.

Established molders have expanded their plants. New molding and fabricating plants have been established. In California plastics firms have been leaders in fabrication and many types of intricate and specialized molding. Southern California is one of the leading transparent thermoplastic sheet fabricating sections in the United States.

PLASTICS–*Continued from preceding page*

is being added to at a rate limited only by the ability of the plastics industry to tool and produce.

Undoubtedly the most important secondary use of plastics in modern aircraft is in the transparent semi-structural members widely used in cockpit enclosures, windows, turrets, and gun emplacements. In such fields there is no competition with plastics and lucite and plexiglass, as well as some of the newer transparent resins such as those developed by Dr. Muskat, have won their place through sheer merit.

They are indispensable in modern aircraft design, and their basic usefulness has been greatly augmented by resourceful development of forming and cementing techniques which enable the designer to draw up transparent structures of almost any size and shape, with the assurance that they can be made by the industry.

Forming techniques which maintain good optical qualities are an invaluable contribution to the efficiency of aircraft, as they enable the designer to maintain adequate vision with little or no sacrifice in aerodynamic form. Each new airplane carries a new and larger transparent bubble covering some gun emplacement or sighting station, and no doubt someday the 16-inch guns of the Coast Artillery will be comfortably housed in a transparent enclosure as big as the dome at Mt. Palomar.

From transparent enclosures on down, almost everything in an airplane has been or could be formed of plastic materials. Control wheels, control handles, seats, floors, window frames, trim tabs, pulleys and pulley brackets, ammunition boxes and chutes, electrical apparatus, landing wheels and fuel tanks, are only a few of the many necessary items in which plastics have been used with success.

One of the organizations that has been especially active in the use of plastics is The Glenn L. Martin Company, who have carried on extensive research on the subject for several years. They have made quite large assemblies, some in the primary structure, with evident success.

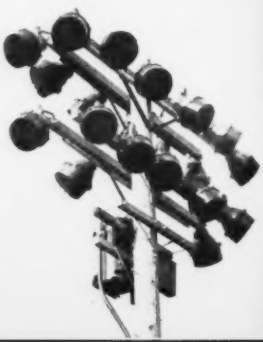
Another use in which plastics appear better than metals on their own merit is in the construction of bullet-proof fuel tanks, or in compartment linings where such tanks are to be housed. In such locations the fact that bullets may pass through the material without crackling, bulging, or "flowering" the structure, is of very great advantage.

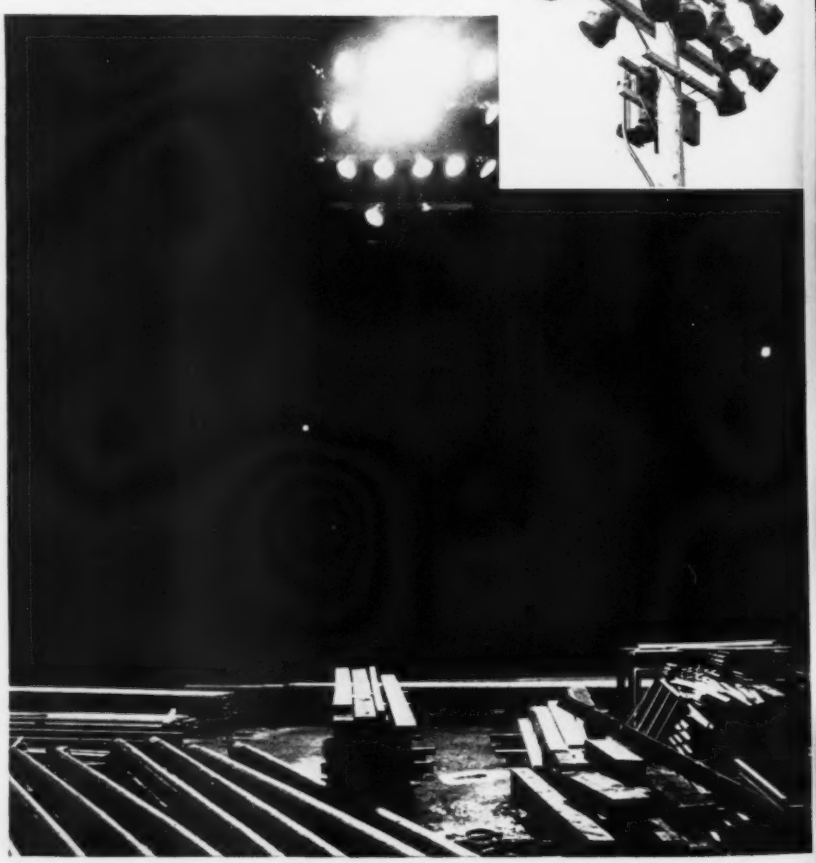
One of the most important uses in aircraft is in connection with the extensive electrical system which is a necessary part of modern war planes. Here radio masts and cases, antenna housings, junction boxes, switches, relays, and a thousand other gadgets are better parts because they are molded plastic.

A recent interesting development having wide possibilities is in connection with the gun installations. Here ammunition boxes, feed and ejection chutes, ammunition rollers, access doors and gun controls all may be made as well or better from fibre or plastics than they can of metal. As such use largely replaces stainless steel, which is a highly critical war material, it is doubly valuable.

Most interesting have been the recent applications of plastic parts to airplane engines. Complicated cooling baffles, push-rod housings, electrical harness supports, and similar parts have been developed which prove to be durable in service, and lighter in weight than the metals they replace, and so do their part in releasing thousands of pounds of critical metals for service where no substitute can be found. We could go on all night with a list of this sort and cover only a few of the places where sheer merit has warranted the use of plastic parts in aircraft or aircraft accessories. Enough has been said, however, to indicate that the field is virtually unlimited except by the engineering time and brains available for such developments.

If we eliminate plywood structures bonded with synthetic resins—which I believe should be done, as calling such planes plastic is surely a misnomer—it is my considered opinion that a plastic having all the qualities necessary in a major structural member, is just now emerging from the chemist's test tube, if in fact it has yet emerged. On the other hand, only a comparatively small portion of the total gross weight of an airplane is basic structure, or powerplant, and everything else, including the pay load, can well be a product of this amazing infant industry that has grown almost overnight out of a bottle to the proportion of an industrial giant.





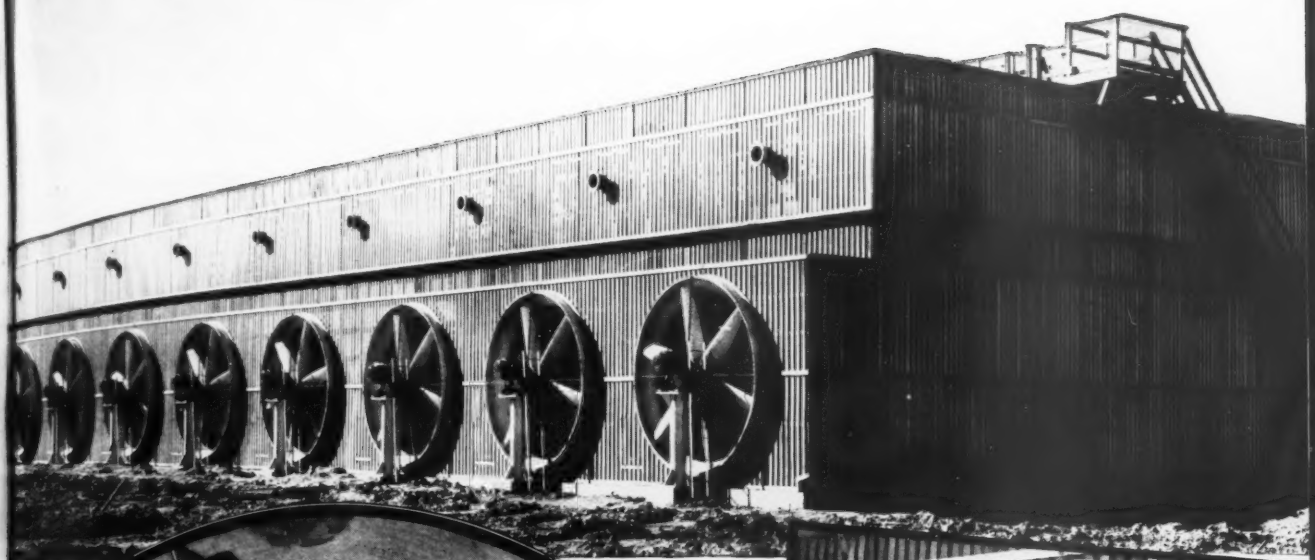
• NO UPWARD GLOW: Cluster of 20 louvered floodlights in north steel yard, Marinship plant at Sausalito, Calif. provide ample illumination without violating the dimout

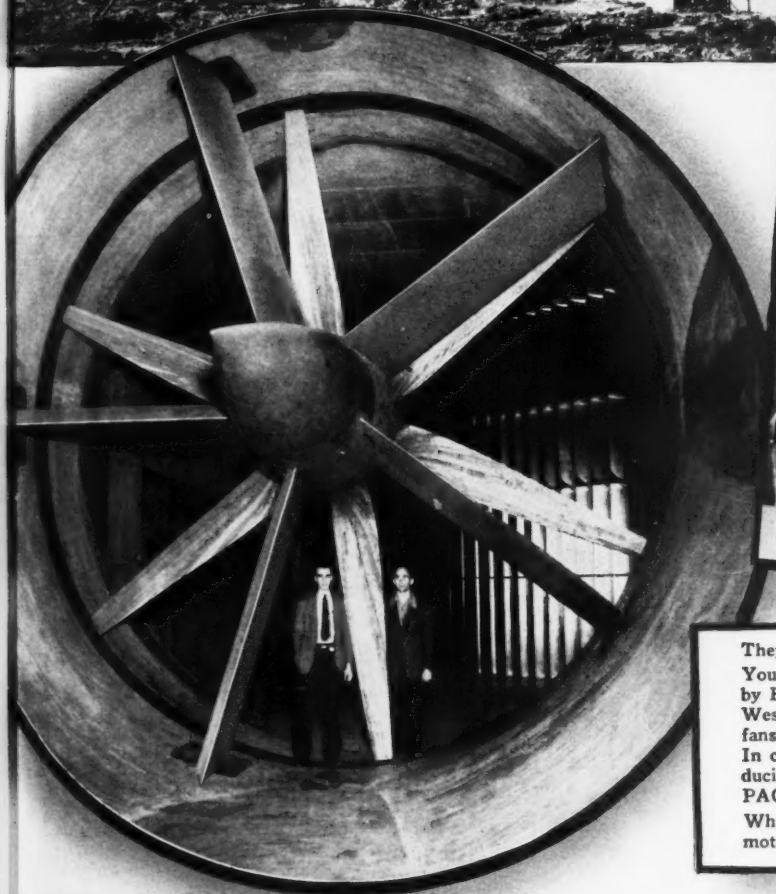
PLASTICS THAT THE ARMY WANTS

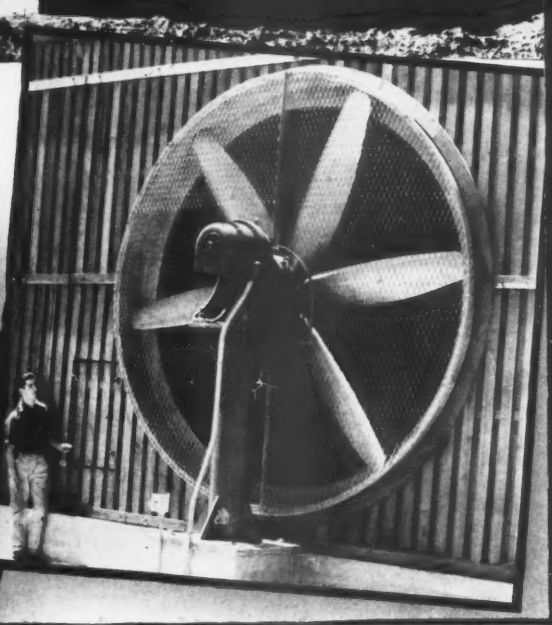
By Brig. Gen. Stephen H. Sherrill
Commanding General,
Western Signal Corps Training Center,
Camp Kohler, Calif.

More thermoplastics which will keep their characteristics at higher temperatures, particularly materials, in addition to nylon, which can be injection-molded and still be able to stand boiling temperatures, and also capable of retaining their toughness at temperatures of 50 degrees or more below zero. The Army's equipment should be interchangeable, usable at a moment's notice in any one of our theaters of operation, so that it is not necessary to procure one radio set for service in Alaska and another to cope with the temperatures and humidity of New Guinea.

WIND AND WEATHER







They're doing something about the weather — and we're helping. You can see, top, a large, multiple, forced-draft cooling tower built by Fluor Corp., one of the largest installations of this type in the West. Below, right, is a closeup of one of the 12-ft. diameter tower fans with its heavy duty PACIFIC Gearmotor, pedestal mounted. In circle, left, is Lockheed's modern wind tunnel capable of producing 400 mph. gales. The 20-ft. diameter fan is driven by a big, PACIFIC right-angle-drive, gear reducer in the streamlined hub.

Whatever your power transmission need, PACIFIC has a gear-motor or gear-reducer of fixed or variable speed for the job.

PACIFIC GEAR & TOOL WORKS

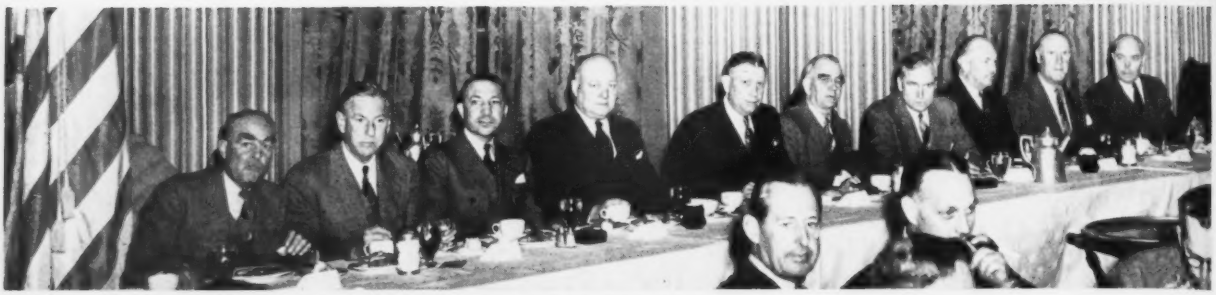
1035 FOLSOM STREET · SAN FRANCISCO, CALIFORNIA

Associated Companies: WESTERN GEAR WORKS — Lynwood, Calif. • PACIFIC GEAR WORKS of LOS ANGELES • WESTERN GEAR WORKS — Seattle, W

California Iron and Steel Confab

Two Luncheon Meetings This Year Replace Old Del Monte Convention

CMP Plan explanation by Henry P. Nelson (at mike) from WPB, Washington, is the main feature. Carleton Tibbetts introducing.



●SPEAKER'S TABLE AT LOS ANGELES LUNCHEON. From left: W. E. Dawson, v.p., Soule Steel Co.; C. E. Bradburn, v.p. Pacific Iron & Steel Co.; Fred Hilpert, v.p., Farmers and Merchants Bank; Walter F. Haggman, mgr., Foundries Specialties Co.; James G. Eppley, Kinney Iron Works; Paul Shoup, pres. Merchants & Manufacturers Assn.; W. C. Mullendore, exec. v.p., Southern California Edison Co.; Harvey Hewitt, Southern California mgr., Bethlehem Steel Co.; E. Jungquist, pres., Percival Iron and Steel Co.; Chas. S. Knight, director, Industrial dept., State Chamber and secretary of iron and steel conference.

● OTHER END OF SAME TABLE: From left: S. E. Gates, General Electric Co., vice chairman of the Iron ,Steel and Allied Industries of California; Henry P. Nelson, Carleton Tibbetts; A. J. McFadden, past president, State Chamber; James Mussatti, general mgr., State Chamber; E. H. McGinnis, mgr., Union Hardware & Steel Co.; C. H. Wittenberg, Southern Calif. mgr., Columbia Steel Co.; Will H. Fischer, v.p., S. C. Edison Co.; George Byrnes, WPB regional director, CMP plan; Irving F. Dix, district mgr., WPB priorities.

●SAN FRANCISCO MEETING: W. A. Ross, pres., Columbia Steel Company; E. Jungquist; B. J. Osborne, Moore Drydock Co.; R. M. Alvord, v.p., General Electric Co.; Henry P. Nelson; Howard Tayler, Tayler & Spottswood Co., chairman, Iron, Steel and Allied Industries; Chas S. Knight; Gilbert H. Kneiss, WPB; P. D. Richardson, pres., Oakland Chamber of Commerce; Weller Noble, pres., Pacific Guano Co.; W. H. Stewart, v.p., Bethlehem Steel Co.; Sid Woodbury, mgr., Woodbury Co., Portland; W. W. Glosser, v.p., Hubbard & Co.

TOUGH NUTS TO CRACK

LOCKED in place on bolt by grip of tough locking collar
SEALED at top to protect working threads from corrosion
HOLDS nut thread against bolt thread — prevents axial play
FITS any standard bolt. Made in all sizes and types

● We've made billions of Elastic Stop Nuts.

And to our knowledge not one has failed to do its job.

But the tough nuts we refer to now are the fastening problems which looked hopeless until Elastic Stop Nuts were used.

We've met lots of these in our day — and licked them.

There have been plenty of them in war production.

And how well these fastenings have filled the bill can best be told this way:

Every nut we can possibly produce is going into war goods. Yet even doubling our round-the-clock plant capacity hasn't let us gain on the demand.

In the days to come there will be many peacetime needs for these nuts.

Some will be simple. Others will look like "tough nuts to crack."

Our engineers like to meet both kinds. They stand ready to share their experience with you, work on your fastening problem and recommend the proper Elastic Stop Nut application for the job.

ELASTIC STOP NUTS

Lock fast to make things last

ESNA
TRADE MARK

ELASTIC STOP NUT CORPORATION OF AMERICA
UNION, NEW JERSEY

West Coast Workers Combat Absenteeism

A NOVEL experiment, far-reaching in its implications, which seeks to destroy the roots of chronic absenteeism is under way at the Moore Dry Dock Company's shipbuilding yards in Oakland, where "working-men" committees have been formed to examine the causes of chronic absenteeism and to pursue remedial efforts.

Long the "bete noire" of the shipbuilding and allied war production industries, chronic absenteeism is charged with sinking more ships than all our enemies. The Moore management, seeking a panacea for this industrial ailment, asked its tens of thousands of employees to offer suggestions on the best method of destroying the evil. Thousands responded.

James Albert Trapp, a 20-year-old welder in the Moore yards, suggested the formation of craft committees, consisting of "understanding workers." Each day these committees would interview those employees within their own craft who were absent the day before, to determine the cause of absenteeism and to suggest remedies.

Trapp's suggestion was adopted by the firm's Labor - Management Committee, which initiated the employee suggestion contest, and Trapp was awarded a $100 war bond for his idea.

From among those who showed their keen interest by offering a variety of suggestions for curing chronic absenteeism, the Labor-Management Committee has selected three men in each of the score of crafts at the Moore plants. These committees will meet daily to examine their fellow workers charged with being absent the day before.

A worker absent today, for instance, will receive a time card upon appearance at work tomorrow which will bear on it a stamp reading, "You must appear before your craft examining committee before this time card may be validated." After the worker has been questioned by his craft committee concerning the reason for his absence, and the committee decides that he may go about his work, the committee will affix a second "clearance" stamp upon the time card, which will be accepted by leadermen, timekeepers and others charged with the responsibility of keeping time.

If an absent worker refuses to appear before his examining committee on any one day, he cannot be docked for that day, because of union agreements and other legal complications. But by virtue of refusing to "play ball," he will be subject to other forms of penalty—including instant dismissal.

Workers with legitimate reasons for being absent will not be detained by the examining committees, but those with faulty or obviously false explanations may be detained for more lengthy questioning. Some cases may be investigated at length

While this form of examination will require the time of several committees and, at the outset, may result in some confusion, it is believed that after a brief period the committees will have weeded out the chronic absentees and will be required to meet only at regular intervals.

When the committee believes that a worker is a chronic absentee who cannot be cured through moral suasion, his name will be referred to the Employee Relations Office where dismissal will be imminent. While this may result in the loss of some workers, management and labor alike believe that the shipbuilding industry will be well rid of those who consistently are absent from their jobs more than their alloted day a week, and that they are a liability to the war effort which can well be sacrificed in the interests of efficiency and production.

The decision of the Labor-Management Committee to adopt this plan of endeavoring to eliminate chronic absenteeism is predicated upon the psychological approach that "you can fool the man you are working for, and you can fool the man who is working for you, but you can't fool the man who is working *with* you."

None of the craft committees will have workers as members with ranking above that of journeyman. Only those with good attendance and other satisfactory records will be awarded membership. These committee members will not be answerable to any of their own shop, yard or hull supervisors, but only to the Labor-Management Committee.

Federal and plant officials recently decided that the "irreducible minimum" in absenteeism represents approximately 2 per cent of all employees of any industrial plant engaged in the war effort. At the present time it is estimated that the average daily absentee factor in all shipyards of the bay area is several times greater than the "normal factor" or "irreducible minimum" of absenteeism.

There are three types of absenteeism, according to those who have made a study of the subject. They are the "excusable," the "preventable" and the "inexcusable" types. Current efforts are being directed toward reducing or eliminating the latter two types.

IMPRACTICAL SUGGESTIONS FOR CUTTING ABSENTEEISM
(not legally or morally justified)

1. To cancel worker's union card. Impractical because only the labor union involved can can a card.
2. To dock an absentee a day's pay. Impractical because it is illegal so to do.
3. To force an absentee to take off as many days as he is absent. This is a lockout and illegal.
4. To hold lotteries of various types. Illegal.
5. To deduct from a worker's vacation an amount of time equal to his absenteeism. Not legal.
6. To jail or shoot absentees. Obviously impractical.
7. To force absentees to join farm working groups. Impractical and not legal.
8. To cancel food and tire ration cards of absentees. Not legal.

No Production Going Backward

Too many industrial engineers figuratively start with the "landscaping" and fail to build the foundation, according to R. B. Parkhurst, chief industrial engineer, Consolidated Aircraft Corporation, San Diego.

"You simply can't make a success of production by working backwards," he told the Society of Aircraft Industrial Engineers at Los Angeles. He asserted that unless care is taken to start materials flowing toward final assembly lines, these lines will "starve" or get out of balance and the entire mass production enterprise will fail.

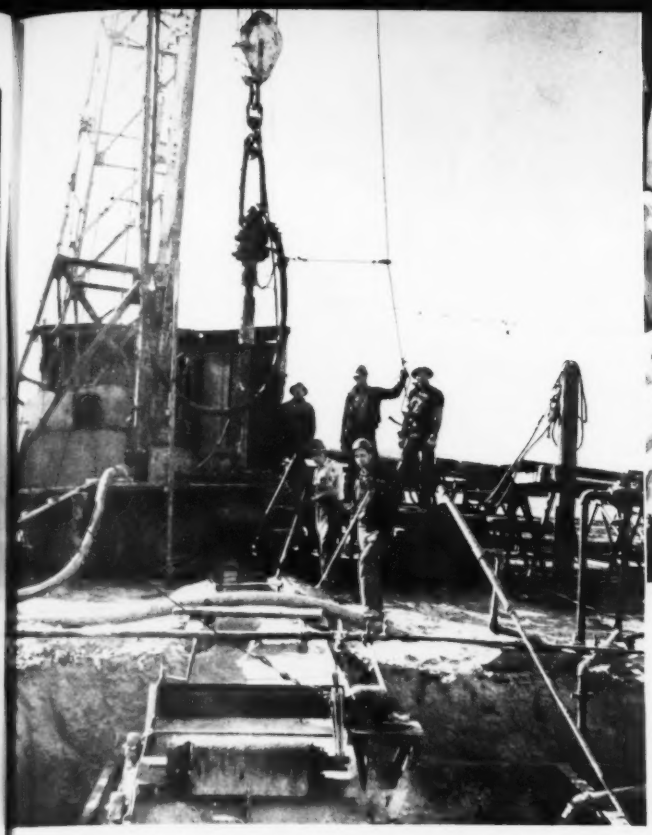
Mr. Parkhurst pointed out that more than 5,000,000 pounds of raw materials are poured into Consolidated Aircraft Corporation every month, and that if these are not fabricated in feeder departments on schedule, the mechanized assembly line will fail in its objective.

He set forth the following five steps necessary to the science of industrial engineering: Planned use of production facilities, procedures or instruction to personnel, establishing operating controls of labor and materials, improvement of methods or conditions, and progress reports for management.

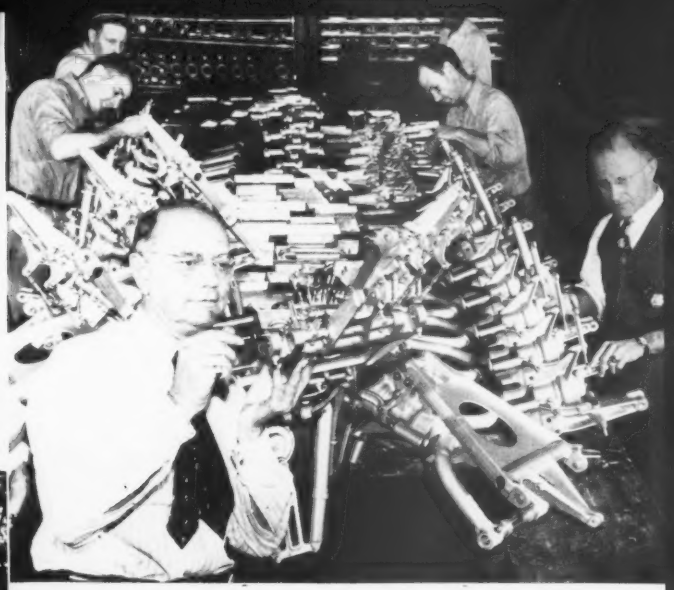
"Simply using the first step—making reports—doesn't work," Mr. Parkhurst said. "You have to get out into the shop and do the real production job before going to the front office with the story of what you've planned to do, but really haven't."

Get Boats Back

• A large percentage of the floating equipment used in the Alaska salmon fishing industry and chartered by the Army will be returned to the industry for the 1943 season.



• The Commercial Drilling Co. in Southern California gets much-needed fuel quickly by using portable drilling outfits on shallow oil wells



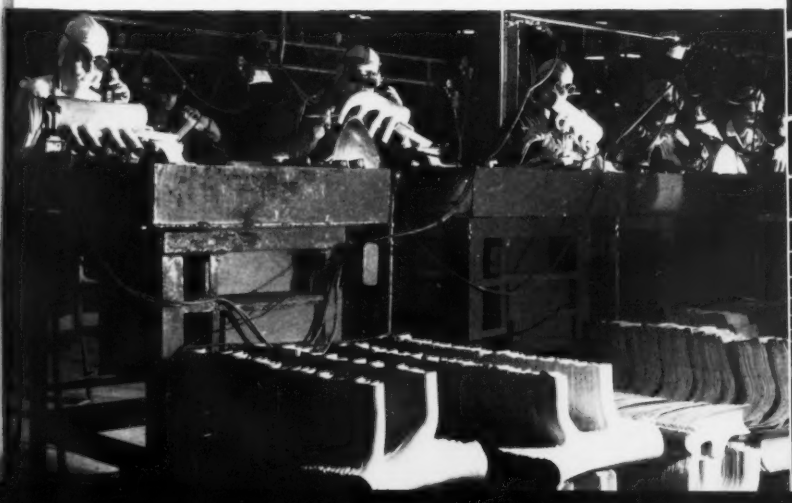
• Nothing like keeping in practice. C. A. Herberts, president of Aerco Corporation, Los Angeles, spends time working in the company shops making component parts for military airplanes

WESTERN INDUSTRY
In Pictures

• Upsy daisy! No trouble at all to move large loads from one place to another in any type western industrial plant

• Hopper-body trailers making first haul of raw material from Gabbs Valley Mill to Basic Magnesium plant at Las Vegas, Nevada.

• Below — nothing from Mars — just women doing acetylene welding on exhaust manifold sections for Solar Aircraft Co., San Diego. At right: An electric motor-driven telescopic platform enables men to replace fluorescent lamps some 35 to 40 feet above floor



Advice On Manpower For Western Firms

Follow Up at Washington on Your Individual Problem If You Want to Be Sure of Results

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

By ARNOLD KRUCKMAN

THE Pacific Slope apparently is most vitally interested in manpower problems, probably above all others, at the moment. Thousands of messages, telephone calls, letters, and personal visits have converged on the Capital the past three or four months. The majority have to do with efforts to save the services of particular men for specific firms and units of industry.

It is probable that most of those who depend upon ordinary methods of negotiation will be disappointed. The whole situation here is muddled and confused. The judgment of one official often is diametrically in conflict with another. The only effort that will get results must be compounded of patience and personal attention and "know how."

It is difficult to phrase in exact words the reason for the condition. McNutt's job is the most unenviable spot in the war government. There are some persons here who are unkind enough to say that he was placed where he is in order that he may incur some popular ill-will.

McNutt is not at present a good bet for nomination for the presidency in 1944. He seems to be making an effort to bypass some of the effect by the process we now call decentralization. In many instances determination for the essentiality of an industry is passed along to the regional War Manpower director and to the local area officials.

Experience of One Western Firm

It works this way: we will assume an industry wishes to be classified as essential. If it is neither near-war or actual war-work, it might just as well accept the fact that it will not be classified essential, and that its workers will either be grabbed for the armed services or for the industries that are necessary for war-work or near war work.

If the industry thinks it may qualify as essential, the story of what it must do can be told by the experience of an industry that is considered by the government one of the most important on the Pacific Slope. This industry provides a basic material for war uses. Government spent much time and money in speeding the industry's functions to full operation.

Less than a year ago Donald Nelson himself went on the air and spent fifteen minutes in telling the nation about its urgent importance. He said: "There is no possibility of over-emphasizing the importance of this job."

A few months later McNutt's organization went on the air and told the nation that only those employed in essential industries would be immune from imminent draft. This particular industry had not been classified as essential.

Classifying the Essentials

Nelson felt he could not over-emphasize its importance to the war, and innumerable other officials in War Manpower and elsewhere frankly said they felt like Nelson; but the muddle and puzzle and bewilderment that possessed the machinery of the organization interfered with the coordination that made a clear declaration possible. Some of the employees necessary to the operation of the industry either went into the armed services or secured jobs in industries that had been classified as essential.

The situation soon became critical. With the cooperation of WPB, the industry strove to secure a classification. It made efforts through its trade organization, and through individual channels, to secure effective rulings. Washington WMC issued directives and interpretations clearly designed to help the industry, but the trouble was that while the documents had moral effect, they did not reach the local Selective Service Boards.

Eventually there came into existence in War Manpower Commission an instrumentality known as the Essential Activities Committee. It consists of representatives of the armed services, Maritime Commission, and of War Manpower Commission. It defines the essentiality of an industry and classifies the essentiality of the men it employs.

In due course it defined this industry as essential, and classified some of its employees as essential. This should have solved the problem. But it did not. It acted chiefly like a headache powder. It gave only temporary relief because the effect was mainly moral. The definition was broad and vaguely legalistic and did not cover the whole industry. It left out the part of the industry upon which the structure rested. And the documentation that flowed out of the action did not take such form that it meant much to the local Selective Service Boards.

You naturally will ask why all this muddle. Probably at the bottom is the caution inspired by the lack of certainty as to what the law itself means. The Selective Service Act was written with the precise purpose of removing the operation of the law from national control. It was intended the local boards should be as absolutely autonomous as consistency with national needs might permit.

There are few persons in Washington who wish to take the political hazard of interfering with the peculiar autonomy of these boards, and under such conditions it is difficult to develop leaders with the courageous initiative to cut red tape. Bear in mind, there are many lawyers and many economists and many altruistic schoolmen and women in these war agencies. All their complicated conflicts and uncertainties create that functional muscle-bound condition you assume is incompetence.

We are now approximately in the fifth or sixth month since the effort started to secure a clear definition of the essentiality of this industry and its workers. Some of the units of the industry have closed because the manager owners and their employees have been drafted. More are on the verge of closing. No one wants them to close. Yet no one seems to know exactly what to do to check the closing.

There is some hope now that a recent action here will place the workers in the proper classification. The combined efforts of individuals, trade organizations, and

(Concluded on page 26)

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PERFECTION IN PROTECTION

MANPOWER— *Concluded from page 24*

divisions of WPB, have induced the War Manpower Commission to issue a circular which will go to the local draft boards within the next fortnight. Its implications are limited, and it does not cover the whole field, but it may make deferment of some workers less difficult. And with this circular as a springboard, more detailed clarification may follow that will make other deferments easier.

Selective Service regulations recently were clarified for the local boards to mean that registrants eligible for the draft must be called in this order:

1. Single men with no dependents (1-A).
2. Single men who do not contribute to the war effort but who have dependents, (3-A).
3. Single men with dependents and who contribute to the war effort (3-B).
4. Men who are not engaged in the war effort and who maintain a bona fide family relationship with a wife only (3-A).
5. Men who are engaged in the war effort and who maintain a bona fide family relationship with a wife only (3-B).
6. Men who are not engaged in the war effort and who maintain a bona fide family relationship with wife and children or children only (3-A).
7. Men who are engaged in the war effort and who maintain a bona fide relationship with wife and children or children only (3-B).

After April 1, men with dependents who are in non-deferable occupations will have 30 days to secure jobs in essential work, or they may register with the United States Employment Service for jobs in essential work. Those who do not qualify either way will be placed in Class 1-A.

If you are part of an industry that has been declared essential, or obviously should be classified as essential, be sure to make up a manning table as quickly as possible. The manning table may be your worker insurance. The manning table is intended to bear the same relation to the people you employ that your inventory bears to your physical properties and resources. It should show, in effect, the history of each person in your employ in relation to your production, and contain an appraisal of the worth of the person to your plant.

Apparently the manning table is set up differently in various states. It will be wise therefore to go to the office of the state director of selective service to secure a specimen of the form in which the table is made up in your state. It has been suggested that you will find at the state selective service offices an outline of a replacement schedule which will enable you to indicate formally the order of importance of employees liable for military service.

This schedule usually is compiled from data developed in preparing a manning table. In case of critically urgent problems it may be made out in advance of the manning table and filed with the state selective service director for record.

The intention is that each state selective service director shall issue a stamp to those whose schedules or manning tables have been approved. The employers who possess this stamp are expected to affix it, or impress it, on the copies of the certified schedules they send with the appeals they make to the local boards on behalf of workers they wish to retain. The very possession of the stamp is expected to demonstrate to the boards that deferment of the workers is desired by the Federal Government.

Obviously such manifest desire practically puts the local board on notice that if it denies the appeal on Form A-48, and the appeal also is denied by the local board of review, it certainly will be granted by the state selective service director. If by any remote chance the appeal is denied by him, you as the employer have the privilege of directly marking an appeal by mail or wire to Gen. Hershey, head of the Selective Service Commission in Washington. When Gen. Hershey receives the appeal he requests the state director to transmit to Washington all the papers in the file.

This action automatically stays any prospective induction until the appeal has been considered. Investigation of the details are usually delegated to an army officer here in Washington who has been assigned the responsibility for problems originating in a specific state. When he determines the appeal is justified, he recommends that Gen. Hershey secure the necessary formal validation from the President.

Hundreds of thousands of urgent problems converge upon the men in the bureaus in Washington. As a matter of practical consideration it is suggested you will get quicker action for your problem if you arrange that some person in Washington keep in touch with your problem as it progresses from bureau to bureau and from official to official.

Enlist the help of a friend, or of a dependable representative of your trade organization, or employ a reliable attorney. Do not ask your member of Congress to do this service. He is already swamped with the inevitable details of his considerable job. And be sure you know something about the attorney you employ. There are some persons here who accept such employment who should not be employed.

Be sure you realize when an employee is called by the local board for reclassification that you must file Form A-48 *before* he presents himself for the reclassification interrogation. The form has no effect if it is filed *after* he appears. If you do not have time enough to prepare and file the form before your employee must present himself to the local board, ask the local board for a postponement on behalf of your employee. Usually the board will grant the delay, especially if you explain the reason.

The experience here is that most efforts to bring the pressure of political influence to bear in order to secure deferments are not only improper, and generally illegal, but usually prejudice the case. If the facts do not support the plea for deferment, do not call on your friends in Washington to help. If any one helps you put something over that is not justifiable, you are both apt to land in jail.

Your friends here can be extremely helpful in securing the attention that will solve your problem, and they can legitimately help in clearing away obstructions and delays that are the result of lack of mutual understanding. If you want information about any angle of the Selective Service operation, and you do not seem to be able to get it out there, write me here enclosing a self-addressed stamped envelope, and your business card. I will try to find out what you wish to know.

The same suggestion applies to any other War Manpower Commission problem. There are many questions about the 48-hour work-week. It is generally understood the regulation does not apply to those who employ eight or less persons. It is enforced only in areas where there is a shortage of war workers. It does not supersede Walsh-Healey Act labor agreements, or Fair Standards labor agreements, or any of the state labor agreements, or labor agreements that come under supervision of other political subdivisions. Following the general War Manpower tendency, most of the problems that arise will be left for determination in the field by the Regional and local War Manpower officials.

And Tanks Also

• Tank manufacture is another addition to the industries of the West, it is revealed by General Motors Corporation, who announce that their new M-5 light tank has been in production in California since last summer. It has already seen action in North Africa, according to Colonel K. B. Harmon, district chief of Army Ordinance for the nine Western states. The tank is being built at the Southern California plant of General Motors, under a contract granted to the Cadillac Division of GM.

• E. L. Mathy, Victor Equipment's vice-president, and Hugo Bedau on the stage

Army-Navy "E" Award For Victor Equipment

Victor Equipment Company, pioneer Pacific Coast organization in the manufacture of welding and cutting equipment, took their bow on February 6 for winning the Army-Navy 'E" production flag.

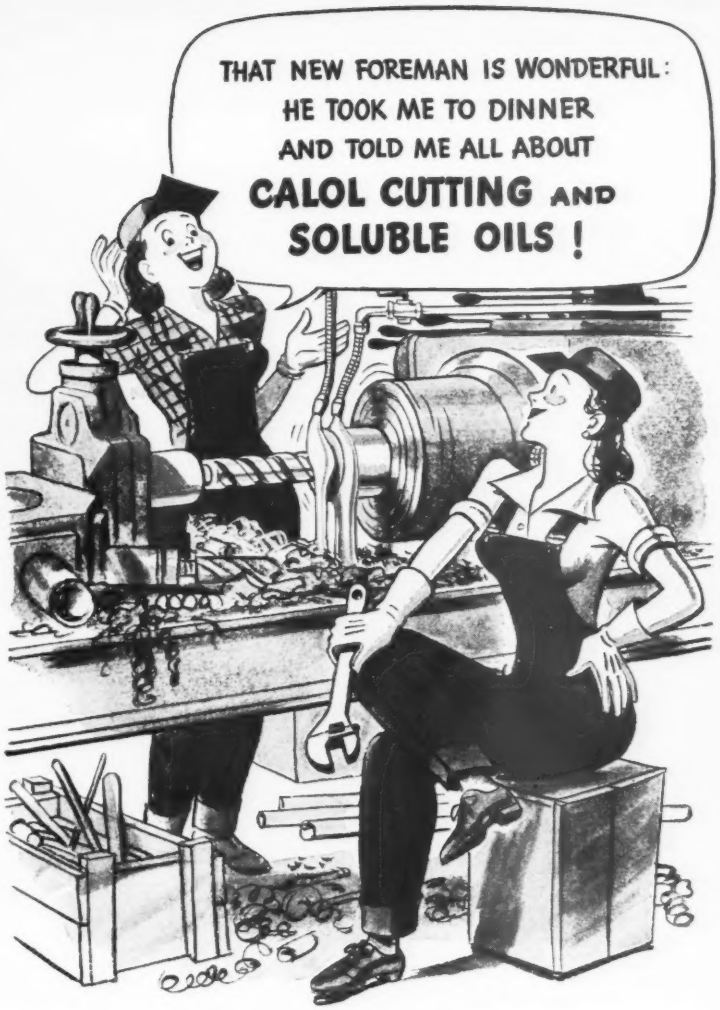
L. W. Stettner, president of the company, received the banner from the hands of Major General Barney M. Giles, on a big stage built on the street in front of the plant, located on Folsom Street in San Francisco. Congratulatory messages received from former President Herbert Hoover, Governor Warren, Senator Johnson, Captain Eddie Rickenbacker and others were read by by E. L. Mathy, vice-president of the company. Many important government, state and municipal officers were in attendance.

General Giles gave timely counsel that the officials and 250 employees of the company should consider the award as a challenge for still greater production. As Victor came up the hard way to its present important position on the Pacific Coast, this advice was not particularly disturbing.

Hugo A. Bedau, executive of the National Federation of Sales Executives pointed out that while many do not understand the importance of welding equipment in the war effort that the men in service for the United States, that the makers of airplanes, ships and munitions of war and others who are vitally connected with the war effort appreciate the importance of the cutting torch and welding equipment.

Mining Gains

• Mining industry production in California showed a $5,000,000 increase for 1942 over 1941, despite heavy declines in gold and a slight drop in silver and copper.



It's quite a story! Better get the full details from your supplier. He can show you how Standard's Calol Cutting and Soluble Oils will speed production on *your* machines. There's a full line: oils for machines handling tough steels, mild steels, alloy steels or non-ferrous metals. Every Calol product is carefully tested by Standard of California to make sure it lives up to this famous name—and Calol Cutting and Soluble Oils do! Learn more about them today.

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WESTERNERS AT WORK...

New Man For New Bakery

J. G. Flynn will manage the new $2,500,000 Loose-Wiles bakery located at 81st Avenue and San Leandro Blvd., in Oakland. He has been with the company for more than 20 years. In 1939, he was

J. G. FLYNN
Knows His Cookies

appointed assistant manager of the San Francisco bakery, continued in this position when the move was made to Oakland, until this new bakery was completed. Mr. Flynn has been labor co-ordinator for the Pacific Coast division, handling all labor matters. He will continue in this position also.

Coordinating Committees

The conservation committee of the California Oil Producers are employing Ernest E. Pyles as petroleum co-ordinator. His work will be to co-ordinate the activities of the committee with those of other committees and government agencies dealing with production of petroleum. William Wardner stays on as manager of the conservation committee.

Packer Gets Post

Edward Thompson, president of the Columbia River Packers' Association and associated with the Association of Pacific Fisheries and Alaska Salmon Industries Corp., has been appointed a commissioner of the Port of Astoria, Oregon.

ODT Office

Frank Clifford has been appointed by the ODT to take charge of the newly created San Francisco information office of the Motor Transport Division of ODT. He is assistant to John M. Desch, freight traffic counselor, who has donated the use of a portion of his office space at 57 Post Street for the ODT work.

Up the Hard Way

Ralph R. Kimes has been appointed general manager of Aircraft Tools, Inc., Los Angeles. He came to California in 1937, starting as a tool grinder for Douglas Aircraft Co.; was advanced to department head, to buyer of machinery and tools and

RALPH R. KIMES
Expert with Aircraft Tools

then purchasing agent of all non-productive material for the three west coast Douglas plants, which position he left to join Aircraft Tools.

Regional Forester

Horace J. Andrews is the new regional forester of the North Pacific region of the United States Forest Service. He had been assistant since 1939. Mr. Andrews holds a master degree in forestry from the University of Michigan and is a senior member of the Society of American Foresters. Clayton S. Crocker has been named supervisor of the Nez Perce National Forest in Idaho.

Will Oust Accidents

Earl F. Campbell will head the National Safety Council's western office which is being established in San Francisco. He will direct the national program which is being conducted at the request of the President by the War Production Fund to Conserve Manpower and the National Safety Council in the 11 western states.

Manpower Men

James P. Blaisdell, president of the Association of San Francisco Distributors, a large warehouse group, has been appointed area director for northern California of the War Manpower Commission. Stanley Bailey, San Francisco newspaperman and industrial relations expert, has been made assistant area director.

To Get Consulted

The Metals Reserve Company, ore-buying agency for the Federal government, has named G. A. Joslin, Los Angeles mining engineer, as consultant. However, Mr. Joslin expects to continue his private practice along with his new work.

Calcium Carbide Chief

Ernest F. Goodner is the general manager of Pacific Carbide and Alloys Co., a subsidiary of the Stuart Oxygen Co., of San Francisco, which is being constructed

ERNEST F. GOODNER
Heads new plant in Tacoma

at Tacoma for the production of calcium carbide. Principal raw products are coke and limestone.

Meet the New Execs

Timothy E. Colvin, executive vice-president in charge of the Burbank division of Aircraft Accessories Corp.

Arthur C. Johnson, president and general manager of Consolidated Machinery & Supply Co., Ltd., Los Angeles, Calif.

Philip E. Dietz and Muirson Wright are new vice-presidents of Atlas Imperial Diesel Engine Co., Oakland. Mr. Dietz also will serve on the board of directors.

Harvey Edmund, vice-president and

general manager of the Coast Counties Gas & Electric Co., Santa Cruz, Calif.

W. E. Hirtensteiner, executive vice-president of the Interstate Aircraft & Engineering Corp., Los Angeles. Walter A. Hite has been elected to the board of directors.

Gunnar Edenquist, vice-president and assistant to general manager of Kinner Motors, Los Angeles. Walter G. Mulka, vice president in charge of production; Jack Kuhn, chief engineer and Kenneth Weiser, service manager.

W. R. Engstrom, vice-president of the Austin Co., Cleveland, with headquarters in Seattle, Wash.

Dan R. Rankin, acting chief engineer, Peerless Pump Div., Food Machinery Corp., Los Angeles.

Roger Lewis, Director of Material, Lockheed Aircraft Corp., Burbank, Calif.

H. E. Hall, general superintendent of United Tungsten Mines, Ltd., Lovelock, Nev.

Carl Page, personnel manager for Aircraft Alloys, Inc., Los Angeles; Keith Spencer, plant engineer; Henry Mann, purchasing agent.

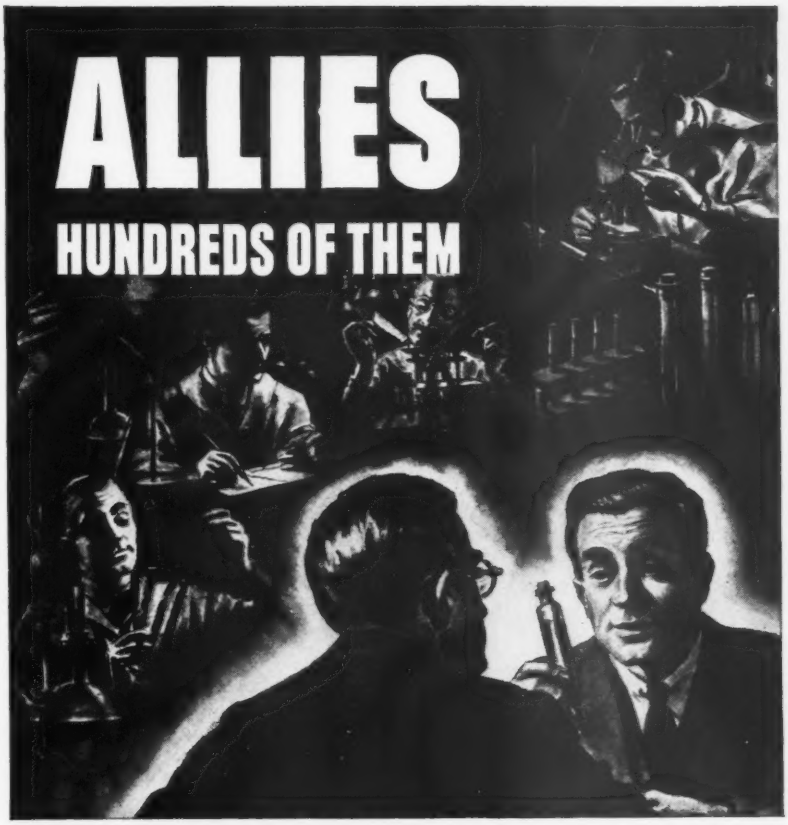
A. J. M. Baker, general manager of Crocker-Wheeler Div., Joshua Hendy Iron Works, Sunnyvale, Calif.

Railroader

Robert S. MacFarlane, Seattle, has been named simultaneously, vice-president of the Northern Pacific Railway Company and the Northwest Improvement Company. He is also a vice-president of the

ROBERT S. MacFARLANE
Holds four vice presidencies

Seattle School Board and the Chamber of Commerce, and to fill in his spare time, serves as a director of various institutions, among them the Pacific National Bank and the Western Life Insurance, and is president of the Rainier Club of Seattle and the University of Washington Alumni Association.



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*LAN-O-KLEEN the Soap that Helps Keep Hands Healthy

Lan-O-Kleen has *proven* its value in helping prevent occupational skin diseases in many of the largest war plants from coast to coast. Lan-O-Kleen is not only an effective cleaner that works mildly and without harsh chemical action—but it actually leaves the hands feeling better, more fit for work. • Lan-O-Kleen is a powdered soap of *mildly* alkaline reaction compounded with granular corn-meal which has been impregnated (by an exclusive process) with LANOLIN, an oil almost identical to the natural oils secreted by the glands of the skin. Lanolin helps nature to maintain a normal, healthy skin condition. • Help prevent occupational skin diseases with their resulting lost time accidents and slower production. *Investigate* LAN-O-KLEEN.

*Trade Mark Reg. U. S. Pat. Off.

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Please send me a SAMPLE QUANTITY of Lan-O-Kleen with which I will give your claim a practical test. Please include folder explaining its use.

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LABOR

AND THE INDUSTRIAL WEST

Money and Time

Creation of a special five-man West Coast Aircraft Committee to control labor relations in that industry, with a three-man committee for Seattle, is the War Labor Board's answer to the problem of interpreting and enforcing the board's long-delayed wage standardization order.

The wage increase is 4½c an hour to 30,000 workers in the Boeing plants at Seattle and an average increase of 7½c to about half the 220,000 employees of eight southern California airframe companies. Labor members of WLB, asking a flat 10c raise, dissented vigorously.

Wayne L. Morse, public member of the board, also dissented and called the decision "stabilization bungling." Chairman Davis of the board declared a general increase to bring aircraft workers' pay up to the shipyard level would only lead to a new cycle of wage increases.

Following is a table showing the range of weekly earnings in a key job in each of the ten labor groups set up in the WLB's order for a 48-hour week on the day shift, with 40 hours straight time and 8 hours at time-and-a-half:

Labor Group	*Specimen Job*	**Hourly Rate Range*	*Wkly. Min.*	*Wkly. Max.*
10	Helper—General (Grade A)	$ .75- .80	$39.00	$41.60
9	Sand Blast Opr., (Grade A)	.80- .90	41.60	46.80
8	Overhead Crane Opr. (Grade A)	.85- .95	44.20	49.40
7	Saw Operator, (Grade A)	.90-1.00	46.80	52.00
6	Drill Press Opr., (Grade A)	.95-1.05	49.40	54.60
	Tool and Die Maker (Grade C)	.95-1.05	49.40	54.60
5	Painter—Maintenance (Grade A)	1.00-1.10	52.00	57.20
4	Welder—Arc, (Grade A)	1.05-1.20	54.60	62.40
3	Engine Lathe Opr., (Grade A)	1.10-1.25	57.20	65.00
	Tool & Die Mkr., (Grade B)	1.10-1.25	57.20	65.00
2	Mechanic—Maintenance (Grade A)	1.20-1.35	62.40	70.20
1	Tool & Die Mkr., (Grade A)	1.25-1.45	65.00	75.40

**Employees' advances within the rate ranges are based on merit.*

Grades B and C in each job fall into a lower labor group than Grade A, as evidenced by the Tool and Die Maker classification in the above table, Grade A falling under Group 1; Grade B under Group 3; and Grade C under Group 6.

Grades A, B and C are the grades of jobs as defined by the airframe manufacturers in their industry-wide job description program.

Kaiser Case

• Hearings in the Kaiser shipyard case at Portland, recessed on account of illness of one of the attorneys, was to be resumed March 29. Kaiser interests then will present their rebuttal arguments. The company claims that efficiency of the yards has dropped 10 per cent as a result of the turmoil caused by the AFL-CIO fight for labor control. Henry J. Kaiser testified before the Truman committee in the Senate that jurisdictional quarrels must stop and suggested that union membership rolls be frozen for the duration, with new workers having the privilege of joining any union they choose or remaining non-union.

Mining Wage Rises Ordered

Half of a $1 daily increase in wages for employees of Pend Orielle Mine and Metals Company in eastern Washington ordered by the Nonferrous Metals Commission is to be contingent upon submission of a program to reduce absenteeism to be carried on by the unions and the company. The increase, retroactive to May 15, 1942, is intended to eliminate inequalities between base rate of pay at this time and that at adjacent mines in Idaho.

The Commission also granted a $1 increase to miners and other workers of the Anaconda Copper Mining Co. in the Butte area, but denied a 50c differential for the night shifts. The company and the unions involved were ordered to negotiate a plan to alleviate absenteeism, but no contingent hold-back was provided.

Offices of the Nonferrous Metals Commission are in Denver.

Here And There In Labor Picture

50-cent increase in carpenters' wages in four counties around San Francisco Bay, bringing daily wages to $12, approved by U. S. Wage Adjustment Board. . . . 201 women employees of Grays Harbor Chair & Manufacturing Co., Hoquiam, Wash., to get same pay as men in numerous classifications. . . . Sailors Union of the Pacific protests action of Maritime War Emergency Board alleged to have in effect cut out seamen's $125 port bonus for sailing into war areas. . . . Collective bargaining election ordered by NLRB at J. G. Boswell Co., Corcoran, Cal., cottonseed oil plant.

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. . . Marchant Calculating Co. allowed by WLB to pay its service mechanics overtime for more than 40 hours a week. . . . NLRB issues unfair labor practices complaints against Richfield Oil Corp., and General Petroleum Corp., on ground union agents forbidden to board tankers and various other interferences with tanker workers self-organization and collective bargaining. . . . Union sues California Shipbuilding Co., to prevent employing non-union men in violation of a contract. . . . AFL Gas Workers Union wins over independent Pacific Gas Workers Union, Inc., in NLRB collective bargaining election in San Gabriel Valley district of Southern California Gas Co., but independent union had no opposition in Ventura district. . . . Complaint on unfair bargaining against five western breweries-Acme Rainier, Regal Amber, San Francisco and California State dismissed by NLRB. . . . Chemists, engineers and other technicians at Shell Development Company, Emeryville, Calif., vote against representation by International Federation of Architects, Engineers, Chemists and Technicians (CIO) but union wins at Permanente magnesium plant at Los Altos. . . . Officials of Solar Aircraft Co., San Diego, refuse to consent or stipulate to assignment of its contract with Independent Solar Employees Assn., to the AFL International Association of Machinists when association aked Solar to recognize the AFL union as exclusive bargaining agent. . . . NLRB directs election at Moss Landing of Port Costa Packing Company to choose between AFL and CIO. . . . Election directed at Lake Majella sand plant of Del Monte Properties Company when company disputed CIO claims to represent majority of employees.

California CIO Council asks government investigation of Permanente magnesium plant at Los Altos, Calif., charging that it is a "$25,000,000 flop" with incompetent and inexperienced executives in charge of a highly technical operation and production costs five times initial estimates. . . . National Railway Labor Board holds hearing before emergency panel at Los Angeles on 50 per cent increase asked by Pacific Electric Railway employees. . . . Old officers of Portland Boilermakers Union, of which Tom Ray is secretary and business agent, file affidavits charging trickery resorted to in election of new officers last December. New officers suing to oust Ray and other old officers. . . . Second flare-up at General Engineering & Drydock Co., Alameda, Calif., over the Christmas week-end working episode; CIO machinists walked out in protest against working alongside Charles Young, who had been expelled from the union. Young claimed it was because he worked the Christmas week-end, union said he had tried to break up the union. Admiral Greenslade of 12th Naval District protested against the walkout, as impairing war effort. Young resigned his job and the men went back. . . . CIO charges excessive absenteeism in San Francisco Bay district shipyards and other plants; AFL claims its members, who are in majority in the shipyards, have lowest absenteeism record in the country.

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43-43

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Jumbo Size Pan Feeder

ONE of the largest pan feeders in the world was built recently for feeding and controlling run of the mine copper ore from the chute to the primary crusher at a Castle Dome Mining Company operation in Arizona. The pan feeder is 10 feet 6 inches wide and 24 feet long, and has a capacity of from 500 to 1500 tons per hour.

The great width was necessary to minimize any arching or jamming of the run of the mine ore at the bottom of the chute. Variable speed was provided to facilitate efficient crushing of ore in the primary crusher, depending on whether the ore was blocky or small. A taper-bar grizzly was installed between the feeder and the crusher with an 8-inch opening to by-pass the fines directly to the conveyor system.

Moving parts of the feeder, including the pans, chains, sprockets and idlers, are all manganese steel for low upkeep and long life.

It is similar to one used at Ajo, Arizona, which has handled some 50,000,000 tons of ore in a 15-year period and was built at the Los Angeles plant of the Stephens-Adamson Manufacturing Company.

This is an open pit mining operation with 20-yard dump trucks operating between the 5-yard full electric shovels and the ore chute at the crushing plant. The primary conveyor system, consisting of a series of 48-inch belts, takes the ore from the primary crusher building to a surge bin in the secondary crusher building. The extra large bins at the primary and secondary crusher buildings provide flexibility and independence between the mining operations and the crushing operations.

• Left to right: R. U. Ulrich, supt., and E. C. Barkstrom, chief engineer, Stephens-Adamson Co., Los Angeles; Harry Morrison, Los Angeles sales manager, American Manganese Steel Co.; R. C. Pierce, vice-pres. Stephens-Adamson; F. W. McLennan, consulting engineer, Castle Dome Copper Co.

Completion Delayed

• Construction of the $150,000,000 Geneva Steel Works near Provo, Utah, is progressing as well as can be expected in the face of a difficult priority situation, according to officials of Columbia Steel Company. It is now estimated that the Geneva plant will not be in operation much before the end of 1943, despite previous mid-summer estimates. At the Ironton plant a larger blast furnace just going into production, will turn out 950 tons daily.

OLD STUFF—LIKE NEW

ADVERTISERS WHO HAVE DEVELOPED a copy or selling idea, worked with it by day, slept with it by night, tire of it all too soon. They forget that what is old stuff to them may not yet have registered with more than 10% of their potential market. What most advertisers really need is not a new copy theme—just a fresh approach to the old one. As an agency, we not only develop new copy themes, but also refresh the old,—*yes, gild the lily and make it sell!*

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THE WEST ON ITS WAY

This is only a partial list of the industrial projects, throughout the eleven western states.

ARIZONA

HOUSING PROJECT—George C. Gammel, P.O. Box 161, Prescott, has been awarded a $115,889.71 contract for construction of 50 temporary dwelling units in Wickenburg. Federal Public Housing Authority, San Francisco, awarded the contract.

FUELING SYSTEM—Shipyard Construction Co., 2609 Cherry Ave., Long Beach, have been awarded a $50,000 contract for construction of an A. F. gasoline fueling system at an Auxiliary Operating base in Mohave county.

CAFETERIA—Bailey & McCoy, 1130 Lowell Ave., Tucson, will construct a cafeteria and lunch rooms in Coconino county. Contract for less than $50,000 by U. S. District Engineer Area Office, Navajo Ordnance Depot, Bellemont.

TEMPORARY BUILDINGS—Murphey-Keith Bldg. Co., North Campbell Ave., Tucson, will construct temporary buildings at an airfield in Pinal county. Contract awarded by U. S. District Engineer Area Office, Phoenix, for less than $500,000.

HEALTH CENTER—Del E. Webb, 302 So. 23rd Ave., Phoenix, will construct a city-county health center in Phoenix, to cost about $60,000. Maricopa County Supervisors, Phoenix, awarded the contract.

TRAILER UNITS—M. M. Sundt Construction Co., Tucson, will construct 400 trailer units throughout Arizona. Contract awarded by the Federal Public Housing Authority, San Francisco.

CALIFORNIA

ANOTHER LOCATION—Joshua Hendy Company are utilizing the former Hydril Company factory buildings in Lomita. H. Schroeder is in charge of installation of machinery. Hydril are moving to Vignes and East Alhambra streets in Los Angeles.

CONTROL HOUSE—J. P. Brennan, Redding, is constructing a control house, cottage and OCB foundation at Stillwater Junction, Shasta county. Property is owned by Pacific Gas & Electric Co., San Francisco, who awarded the contract.

FLOATING DRYDOCK—Pollock Stockton Shipyard Co., Stockton, will construct six sections of a steel sectional floating drydock at Stockton. The $6,420,000 contract awarded by the Bureau of Yards & Docks, Navy Dept., Washington, D.C.

SHELTERS—G. A. Bell Engineering Co., 801 West Fifth St., Los Angeles, have been awarded a negotiated contract for construction of shelters in Los Angeles, to cost more than $100,000. By U. S. District Engineer Office, Los Angeles.

SHIPPING BOX PLANT—Pomona Box Co. are completing plans for the erection of a plant in Pomona for the manufacture of box shook and boxes for shipment of fruits and vegetables.

ADDING FLOOR SPACE—Downey Machine Co., 117 East Firestone Blvd., Downey, are making another expansion in floor space to accommodate increasing business in the manufacture and processing of airplane parts.

TIN CONCENTRATOR—Steel Service & Sales Co., Chicago, will construct a 50-ton tin concentrator at the Evening Star mine, ten miles north of Cima. The claims are leased to the Chicago company headed by C. S. Wendrick.

AVIATION SHORE FACILITIES—Macco Construction Co. and E. S. McKittrick, 815 Paramount Blvd., Clearwater, have been awarded two contracts by the Bureau of Yards & Docks, Navy Dept., Washington, D.C. One is for additional aviation shore facilities at the San Diego Naval Air Station at $1,625,700, and the other is for additional facilities at the San Diego Destroyer Base at $7,570,500.

SEAMLESS STEEL TUBING—Pacific Tube Co. are building a manufacturing plant in the Bandini district of East Los Angeles to make small seamless steel tubing. There will be an investment of more than $1,500,000.

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THE WEST ON ITS WAY

CRATES FOR PARTS—M. C. Foy & Son, Hutchinson, Kansas, have purchased a site at 6800 South Boyle Ave., Los Angeles, for the manufacture of crates for aircraft parts.

BOTTLE CROWNS—Can Crown Association, 3132 East Pico Blvd., Los Angeles, are manufacturing bottle crowns for bottlers of malt and carbonated beverages.

PRODUCING TOOLS—Victory Tool & Die Works, 416 Lorraine St., Glendale, have started production of small dies, small machine tools and will do production manufacturing of small fixtures and experimental work. They also are equipped to do hardening.

POTASSIUM SALTS—E. I. du Pont de Nemours and Co. are recovering potassium salts by re-crystallization from the vast Searles Lake salt deposits in the desert country of California. These salts provide the basic material from which potassium cyanide is manufactured at a nearby plant of the du Pont company.

SERVICE TRAINING SHOP—Sierra Construction Co., 25 No. Allen Ave., Pasadena, have been awarded a negotiated contract by the U. S. District Engineer Office, Los Angeles, for construction of service training shop and cold storage plant in Los Angeles to cost more than $100,000.

FLOATING DERRICK—Pacific Coast Engineering Co., Inc., P. O. Drawer E., Alameda, have been awarded a $250,000 contract by the Bureau of Yards & Docks, Navy Dept., Washington, D. C., for a 100-ton floating derrick in the Twelfth Naval District.

COWL FASTENERS—Nigg Engineering Co., Covina, have started production of cowl fasteners which are used to secure to the main structure of an airplane those sections of the covering which have to be removed frequently.

SPRINKLING EQUIPMENT—George M. Robinson & Co., 451 Folsom St., San Francisco, have been awarded a contract for installation of automatic sprinkler equipment in the Columbia Steel plant, Pittsburg.

WOODEN DOLLIES—The Black Lumber Co., La Crescenta, is building wooden dollies for Lockheed-Vega Aircraft Co.

WELDING RODS—Arcrods Corporation, Pittsburg, have started the manufacture of welding rods in their recently completed plant.

FUELING SYSTEM—Commercial Welding & Manufacturing Co., 2750 Norton Ave., Lynwood, will install an A. F. gasoline fueling system at an airport in Los Angeles county. Contract for less than $50,000 awarded by U. S. District Engineer Office, Los Angeles.

BUILDING BARGES—Otto Steinbrenner, Sacramento, who has a construction site on the Yolo side of the Sacramento River, is building wood barges, 110 feet in length, for the Army. He has been awarded a contract for thirty of them.

MAGNESITE DEPOSIT—Tycrete Products Corp., Beverly Hills, have signed contracts for the Brown magnesite deposit located 12 miles west of Needles. The deal involves purchase of ore production in excess of $1,000,000. The company has a 150-ton plant in operation at Chula Vista for treatment of magnesite.

ENAMEL TO NOSE PIECES—Pacific Enamel Plant, Richmond, are retooling their plant for the production of cast iron nose pieces for incendiary bombs and for finished magnesium body castings. A war contract already has been awarded.

RUBBER PLANT—The Standard Oil Company of California, San Francisco, are reported to have started construction of a $6,200,000 synthetic rubber plant in California, and expect to have it completed by July 31.

STEAM DISTRIBUTION SYSTEM—Flotation Systems, 4031 Goodwin Ave., Los Angeles, will install a steam distribution system in a hospital at an anti-aircraft range in San Bernardino county. Contract for more $100,000 awarded by U. S. District Engineer Area Office, San Bernardino.

FLOATING DRYDOCKS—Pacific Bridge Co., 333 Kearny St., San Francisco, have been awarded a $735,000 contract by the Bureau of Yards & Docks, Navy department, Washington, D. C. for three timber floating drydocks at San Diego.

FENCE AT FACTORY—Pacific Fence Co., 1012 No. Highland Ave., Los Angeles, will construct a fence around a factory training school in Los Angeles county. U. S. District Engineer Area Office, Los Angeles, awarded the contract.

SUPPLY BUILDING—Max Maltzman and W. E. Robertson, 4015 West Jefferson Blvd., Los Angeles, will construct a supply building at an Air Depot in San Bernardino county. U. S. District Engineer Office, San Bernardino awarded the contract for less than $500,000.

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BUILDING AND MOVING—Hastings-Quinn, Inc., 1135 North Las Palmas Ave., Los Angeles, will construct additional buildings and move existing one in San Diego county. Contract awarded by the U. S. District Engineer Office, Los Angeles, in an amount in excess of $100,000.

SHELTERS—W. D. Haxton, 4271 Landis, San Diego, will construct shelters at a cost of $50,000. Contract by U. S. District Engineer Regional Office, San Diego.

CLINIC—Jackson Bros.-Le Sage, 547 So. Fairfax Ave., Los Angeles, has been awarded a negotiated contract by the U. S. District Engineer Office, Los Angeles, for the construction of barracks in Los Angeles county to cost in excess of $50,000.

RECREATION BUILDING—Biltwell Construction Co., 4745 Geary Blvd., San Francisco, will construct a recreation building at an army fort in the San Francisco Bay area. Contract by U. S. Army Engineer Office, San Francisco.

HOSPITAL EXPANSION—Nordin Construction Co., 3030 Exposition Blvd., Los Angeles, has been awarded a contract by the U. S. District Engineer Office, Los Angeles, for the construction of a 297-bed hospital expansion at a camp in San Diego county.

FUELING SYSTEM—Peter Gadd, 2173 Colorado Blvd., Los Angeles, will install an A. F. gasoline fueling system in Inyo county. Contract for less than $100,000 by U. S. District Engineer Office, Los Angeles.

COLORADO

STORAGE VAULTS—J. E. Roupp, 3434 East 17th Ave., Denver, will construct storage vaults in Denver county on contract awarded by U. S. District Engineer Office, Denver.

COMMISSARY—Wm. Tamminga, Tramway Bldg., Denver, will construct a commissary building in Denver county on contract awarded by U. S. District Engineer Office, Denver.

ADDITION FOR BUILDING—Brown-Schrepferman & Co., 240 Washington St., Denver, have been awarded a negotiated contract by the U. S. District Engineer Office, Denver, for constructing an addition to a base engineering building in Denver county.

HOUSING UNITS—Platt Rogers, Inc., P. O. Box 153, Pueblo, will construct 210 frame housing units at Pueblo. Federal Public Housing Authority, Kansas City, awarded the contract.

AIR FIELD—Kiewit-Honnen-Condon, Colorado Springs, will construct an auxiliary air field including runways with oil surfacing to cost more than $500,000. Contract by U. S. District Engineer Office, Denver.

STORAGE BUILDINGS—Geo. O. Teats, 1701 No. Nevada Ave., Colorado Springs will construct four storage buildings in El Paso county. Contract awarded by U. S. District Engineer Office, Denver.

INTERNMENT CAMP—Larson & Udeson, 309 Wilda Bldg., Denver, has been awarded a contract by the U. S. District Engineer Office, Denver, for construction of an interment camp which includes approximately 80 buildings to cost less than $500,000.

TEN BUILDINGS—Taylor & Chambers, Roswell, will construct ten buildings with utilities in Chaves county. Contract for less than $50,000 by U. S. Engineer Office, Albuquerque.

MILITARY BUILDINGS—H. J. McNeel, Caldwell, will construct buildings and appurtenant work at a military site in Ada county. Contract for less than $50,000 awarded by U. S. Army Engineers.

IDAHO

MILITARY CONSTRUCTION — Jacobsen-Jensen Co. and Dan J. Cavanagh, Boise, will do construction work at a military site in Ada county. Contract for less than $50,000 awarded by U. S. Army Engineer Office, Portland.

AIR FORCE BASE—Ertz, Burns & Co., Donald M. Drake, Lorenz Bros. and Parker Schram Co., Pittock Bldg., Portland, have been awarded a contract by the U. S. District Engineer Office, Portland, for construction of an air force base in Elmore county in an amount less than $5,000,000.

ELECTRIC SYSTEM—Walton & Brown Electric Co., Salem, Ore., have been awarded a $70,000 contract by the U. S. Army Engineers, Portland, for construction of an electrical distribution system and street lighting system at a military site in Elmore county.

SELLS TIMBER—H. B. Shove, Rathdrum, has sold his 400 acres of mixed timber in the Upper Twin Lake area to Baird & Naundorf, Spokane. It is understood that the timber will be logged and manu-

Your Chemical Reporter

Every day brings forth something new in the chemical industry. Old products find new uses, and new developments sometimes require new chemicals. This monthly column brings you our observations of new chemical applications in the West.

Tartaric vs. Citric

Heavy demands are being made upon Tartaric Acid manufacturers due to the shortage of Citric Acid. Production is entirely taken up with orders from regular customers and this commodity is at the present time being back-ordered in some cases.

Production of Tartaric Acid at the present time is normal and future production will depend upon the availability of raw materials. Former users of Citric Acid cannot expect to have their entire demands filled, however, with the rate of production of Tartaric Acid the same as before the shortage of Citric. Manufacturers of Tartaric are endeavoring to take care of their regular accounts based on past buying experience.

Priorities Tips

MAINTENANCE, repair, and operating supply problems of the Chemical Industry will be given a shot in the arm on March 31 when CMP Regulation No. 5 takes effect. This new Order extends priority assistance in the form of an allotment symbol (MRO) for controlled materials, and preference ratings (AA-1, AA-2X, A-10) for other materials needed by various industries for maintenance, repairs, and operating supplies (MROS). The Chemical Industry, fortunately, is in the top bracket, having a preference rating of AA-1.

CMPR-5 even provides for the acquisition of items of productive capital equipment and minor capital additions or replacements not exceeding $500 in value (excluding cost of labor). All chemical producers should study this Regulation thoroughly so that they may be able to take full advantage of all its provisions. Don't forget that if you now operate under a "P" order, the requirements of such an order in regard to making applications and filing reports, as well as other provisions and restrictions of the "P" order, will remain in full effect unless modified or revoked except as otherwise provided in CMPR-5.

Your inventories of MROS are regulated by CMPR-2, which restricts you to a 60-day supply or to a "practicable working minimum," whichever is less.

Aeroplane Motors in Cellophane!

Remember in the good old days when you could buy a new gun or tool, it always came all greased up to prevent rust? It was a real job to take it apart and clean it up before you could use it. Our boys in steaming Guadalcanal and frigid Dutch Harbor are having the same troubles in cleaning up their newly arrived fighting equipment, only under far worse conditions.

There is a new idea in packing and shipping which should be a Godsend to them when it becomes more widely used. Each crated aeroplane motor will be ready for immediate use upon arrival because it is packed in an air-tight plastic film bag containing a small amount of an inexpensive chemical called SILICA-GEL. The Silica-Gel has the property of absorbing all moisture during the period of shipment, thereby preventing rust without any grease.

Barrels to Bags

Some of our friends who have been forced to use Anhydrous Sodium Sulphate in place of Glauber's Salt in their textile operations will be glad to know that STAUFFER has again resumed production of this chemical. However, the cost of barrels has sky-rocketed so high that the trade is urged to buy in multi-wall paper bags. When you come right down to it these days, the paper bag is the only satisfactory package because the lumber from which the barrels are produced is usually more vitally needed to construct houses for our shipworkers or crates for our foodstuffs going overseas to our boys. Thank fortune there is still plenty of paper.

Your Chemical Reporter will bring you helpful chemical information each month through the courtesy of Stauffer Chemical Company, San Francisco, Los Angeles and North Portland.

THE WEST ON ITS WAY

factured into lumber at the Twin Lakes mill operated by McElderry & Stokke.

MISCELLANEOUS BUILDINGS—J. W. Brennan, Box 507, Pocatello, has been awarded a contract for more than $100,000 for the construction of buildings in Power county. By U. S. District Engineer Office, Portland.

NEVADA

AIRPORT CONSTRUCTION—Steed Bros., 714 Date Ave., Alhambra, Calif. are doing additional construction at an airport in Clark county. Contract for less than $50,000 awarded by U. S. District Engineer Area Office, San Bernardino.

TEMPORARY HOUSING—Hommes & Eudemiller, 6521 Wilshire Blvd., Los Angeles, will construct 40 temporary housing units at Pioche. The Federal Housing Authority, San Francisco, awarded the contract.

HOSPITAL FACILITIES—M. J. Brock & Sons and Davies & Keusder, 107 No. Larchmont Bldg., Los Angeles, have been awarded a contract by the U. S. District Engineer Area Office, San Bernardino, for the construction of additional hospital facilities in Clark county to cost approximately $50,000.

NEW MEXICO

AIRFIELD FACILITIES—Skousen Bros., 206 Spring Blvd., Albuquerque, are constructing airfield facilities in Lea county costing about $1,000,000. Contract awarded by U. S. District Engineer Office.

BUILDINGS AT AIRFIELD—J. E. Morgan & Son, 210 No. Campbell, El Paso, Tex., have been awarded a $100,000 contract by the U. S. District Engineer Office, Albuquerque, for constructing additional buildings at an airfield in Luna county.

HOSPITAL BUILDINGS—Bradbury & Marchant, 1217 No. First St., Albuquerque, will construct additional hospital buildings in Santa Fe county. U. S. District Engineer Office, Albuquerque, awarded the contract for less than $50,000.

MICA RIFTING—Colonial Mica Corp., New York, have completed plans for the establishment of a custom mica rifting and trimming plant at Santa Fe. They will assist mica producers by leasing necessary mining equipment.

WARD BUILDINGS—H. E. Webb Construction Co., Lubbock, Tex., will construct two ward buildings of mobilization type construction together with complete utilities at an airfield in Chaves county. Contract for less than $100,000 by U. S. District Engineer Office, Albuquerque.

CIVILIAN HOUSING—Bradbury & Marchant, Albuquerque, will construct civilian housing at the Clovis Army Air Base. Contract was let at approximately $643,000.

OREGON

LEASES TERMINAL—Kaiser Co. of Vancouver, have leased the 1180-foot general cargo terminal at The Dalles for storage of miscellaneous ship supplies and equipment, according to the Port of The Dalles.

WOOD SUB CHASERS—Astoria Marine Construction Co., Astoria, have been awarded contract by the Bureau of Yards & Docks, Navy Dept., Washington, D. C., for construction of two wooden sub chasers, 136 feet in length.

CRANBERRY PLANT—Cranberry Canners, Inc., Coquille, will construct a plant to be in operation in the fall, according to Marcus L. Uram, president of the National Cranberry Cooperative.

STEEL FOUNDRY—W. A. Rushlight has purchased the Lutz Marble Company plant at 3900 N. W. St. Helens Road, Portland, for use as a steel fabricating plant and foundry. The Lutz firm will maintain offices at 502 Couch Building.

MILITARY FENCING—R. C. Eastman, Bend, has been awarded a less-than-$50,000 contract by the U. S. Army Engineers, Portland, for construction of fencing at a military site in Jefferson county.

WOOD TUGS—Steinbach Iron Works, Tillamook, will construct three tugs to cost $38,264 each, and Siletz Boat Works, Kernville, two tugs to cost $39,524. Contracts awarded by the Maritime Commission, Washington, D. C.

6 JOBS WHERE YOU CAN SAVE TIME!

Whatever war supplies you are making, you can SAVE urgently needed time and STEP-UP output by using FAST-WORKING, SAFE Oakite materials for these SIX essential jobs:

1. Cleaning parts before and after heat treating
2. Machining ferrous and non-ferrous metals
3. Preparing aluminum and stainless steel parts for arc, gas and resistance welding
4. Drawing, stamping, blanking, forming, etc.
5. Burnishing and tumbling
6. Degreasing and descaling before cadmium plating, painting, black oxide finishing, galvanizing, etc.

For further data, write to nearest address listed below.

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LOS ANGELES ..... 1001 East First St., Tel. Madison 1544
SAN FRANCISCO ..... 115 Townsend St., Tel. Douglas 5640
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SAN DIEGO ..... 310 Fifth Ave., Tel. Franklin 0312
SEATTLE ..... 95 Connecticut St., Tel. Main 1207
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DENVER ..... 1700 15th St., Tel. Main 3221

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Downs HANDLING EQUIPMENT

HORIZONTAL PLATE HOOKS may be used in sets of either two or four. Will handle one or more plates at each lift. They are time and labor savers for fast loading or unloading when plates are to be stacked in the flat position.

SAFETY PLATE GRIPS with either rigid or loose guide loops will hold with a positive grip in all positions. Used for handling vertical plates, they are also safe for upending or turning over horizontal plates or assemblies.

DOWNS RAIL TONGS built for safe and economical handling of railroad rails of all sizes and weights. Two-ton capacity with jaw openings of 3" for rails up to 100 lbs. ASCE. Three-ton capacity with jaw openings of 4½" for the heaviest rails.

DOWNS CRANE & HOIST CO.
540 W. Vernon Ave., Los Angeles, Calif.

ADDITIONAL FACILITIES—The Columbia Steel Castings Co., N.W. Tenth and Johnson, Portland, has been authorized by the Defense Plant Corp., to build additional plant facilities to cost $700,000.

FLIGHT STRIP—E. C. Hall & J. C. Compton, Eugene and McMinnville, have been awarded a $290,785 contract by the Oregon State Highway Commission, Portland, for construction of a flight strip project in Morrow county.

REPAIRING ROOF—Pacific Roofing Co., 6451 N.W. Front Ave., Portland, will repair a roof at a military site in Umatilla county. Contract for less than $50,000 awarded by U. S. Army Engineers, Portland.

WAR PLANT—Columbia Fruit Growers, The Dalles, has signed a contract with the San Francisco ordnance department allowing them to use part of their floor for installation of a new war industry.

UTAH

FOUR HOUSING PROJECTS—Robert E. McKee, 4700 San Fernando Road, West, Los Angeles, has been awarded a contract by the Federal Public Housing Authority covering four housing projects in Utah, at $4,241,500.

COLD STORAGE—R. K. McCullough, 685 G Street, Salt Lake City, has been awarded a negotiated contract by the U. S. District Engineer Office, Salt Lake City for construction of additional cold storage buildings at an air depot in Weber county to cost less than $50,000.

HOUSING PROJECT—James I. Barnes Construction Co., 710 McIntire Bldg., Salt Lake City, have been awarded a $2,470,000 contract for a War Housing Project near Tooele. By Federal Housing Authority, Kansas City, Mo.

REPAIR SHOP—LaBarr & Franklin, Covey Apartments, Salt Lake City, will construct a motor repair shop at an air depot in Weber county. Contract for less than $50,000 awarded by U. S. District Engineer Office, Salt Lake City.

FIRE ALARM SYSTEM—Ogden Cache Electric Co., 2310 Grant Ave., Ogden, will install a watch report and fire alarm system at an air depot in Weber county. Negotiated contract for less than $50,000 awarded by U. S. District Engineer Office, Salt Lake City.

ARSENAL STOREHOUSE—LaBarr & Franklin, Covey Apts., Salt Lake City, will construct a storehouse at an arsenal in Weber county. Contract awarded by U. S. District Engineer Office, Salt Lake City.

BARRACK BUILDINGS—R. J. Daum, 6803 West Blvd., Inglewood, will construct barracks in Weber county at a proving ground. U. S. District Engineer Office, Salt Lake City, awarded the $50,000 contract.

WAR HOUSING—Olson Construction Co., Hill Field, will construct civilian war housing facilities in Tooele county. Contract at less than $500,000 awarded by U. S. District Engineer Office, Salt Lake City.

OFFICERS' BARRACKS—Merrill & Lauch, Ogden will construct officers' barracks and mess hall in Weber county. Contract for less than $50,000 awarded by U. S. District Engineer Office, Salt Lake City.

HANGAR ADDITION—Harrison & Dorman, 13 South and 4 West, Salt Lake City, will construct an addition to a steel hangar at an air field in Tooele county. U. S. District Engineer Office, Salt Lake City, awarded the $50,000 contract.

FIRE STATION—James I. Barnes Construction Co., 710 McIntire Bldg., Salt Lake City, has been awarded a $50,000 contract by the U. S. District Engineer Office, Salt Lake City, for construction of a fire station in Weber county.

WASHINGTON

BUYS BLEACH PLANT—The Purex Company, Tacoma, have purchased the Mild-Ex Company plant at 1530 Center Street. They have installed three new tanks, doubling the output, and are planning further expansion.

BARGES—Sound Construction and Engineering Co., Northern Life Tower Building, Seattle, will construct barges to cost more than $1,000,000. U. S. District Engineer Office, Seattle, awarded the contract.

TESTING WELL—Roscoe Moss Co., 4360 Worth St., Los Angeles, have been awarded a less-than-$50,000 contract by the U. S. Engineer Office, Seattle, for drilling testing well at a military site in Pierce county.

X-RAY QUARTERS—Puget Sound Machinery Depot, 3451 First Ave. So., Seattle, are installing x-ray quarters.

EXPANDING SHIPYARD—Seattle-Tacoma Shipbuilding Corp., Tacoma division, has acquired five additional tideflats tracts totaling almost 50 acres. It was purchased for them by the Navy.

"Bound to Get There"

On far-away docks — in foreign fields — it's important that your shipments are shipped right . . . are strapped right. Acme Steelstrap helps get shipments where they're needed . . . quickly, safely and economically.

Simple to handle, Acme Steelstrappers are easily and speedily operated by women workers.

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Every shipment occupies valuable cargo space. But a damaged shipment might just as well not have been delivered—it is useless to the receivers. On the other hand, the shipment that receives adequate protection is ready for immediate use.

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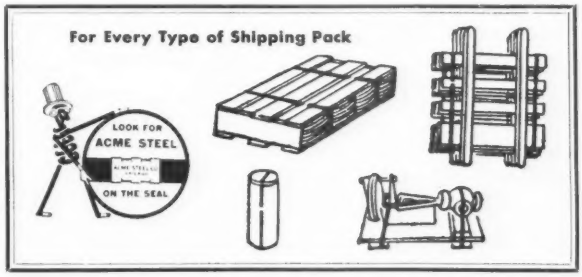

ACME STEEL COMPANY

4901 Pacific Blvd., Los Angeles — 1025 Sixth Ave., So. Seattle
432 Bryant St., San Francisco — 522 N. W. Davis St., Portland
990 Station St., Vancouver, B. C.

THE WEST ON ITS WAY

ALTERING CAR BARNS—Austin Company, Seattle, will alter the car barns at 500 Fifth Avenue No., Seattle, at an approximate cost of $125,000. The Transportation Commission of the City of Seattle let the contract.

LUMBER MILL SOLD—O. K. Palmer, Palmer Lumber & Mfg. Co., Chehalis, has sold his firm to Robert Thompson, Centralia for approximately $100,000. Thompson has operated the Lincoln Creek Lumber Co.

BUSINESS CENTER—J. C. Boespflug Construction Co., Securities Bldg., Seattle, have been awarded a contract for the construction of a business center in the Renton Housing Project, Renton, to cost $106,000.

FOUR TUGS—J. M. Martinac Shipbuilding Corp., 1040 East "D" St., Tacoma, will construct four heavy wooden tugs, 110 feet in length with 1,800 h.p. diesel electric drive for the Bureau of Yards & Docks, Navy Dept., Washington, D. C.

TELEPHONE BUILDING—Austin Co., Dexter Horton Bldg., Seattle, will construct a telephone building in King county to cost about $50,000. Contract awarded by Seattle area office.

WAREHOUSE—O. F. Larson & Son, Pacific Savings Bldg., Tacoma, will construct a warehouse building in Pierce county to cost less than $100,000. U. S. District Engineer Office, Seattle, awarded the contract.

REPAIRING FACILITIES—Hansen & Weidner, W. 230 Pacific, Spokane, is repairing sub-depot facilities at a military site in Spokane county. Contract between $50,000 and $100,000 awarded by U. S. Army Engineers, Seattle.

UTILITY YARD FACILITIES—Gaasland Construction Co., 1161 Ellis, Bellingham, will construct facilities for a utility yard at a military site in Grant county. U. S. Army Engineers, Seattle, awarded the contract for less than $50,000.

PRODUCING TALC—Northwest Talc and Magnesium Co., Clear Lake, are installing equipment on the Clear Lake mill site of seven acres for the production of talc and magnesium.

ELECTRICAL WAREHOUSE—Reimers & Jolivette, Railway Exchange Bldg., Portland, Ore., will construct an electrical warehouse at the Kaiser shipyard in Vancouver.

WYOMING

PILOT PLANT—Permanent Construction Co., Milwaukee, Wisc., have started work in Laramie on a pilot plant for manufacture of sponge iron which will cost approximately $600,000. Bureau of Mines awarded the contract.

REMODELING POST OFFICE—A. B. Chapman, 243 So. Park Ave., Casper, will alter the post office building at Casper. Contract awarded by Federal Building Administration, Washington, D. C.

OPPORTUNITY SECTION . . .

Priorities regulations have made it practically impossible to secure new machinery for industrial operations unless a plant is doing 100 per cent work on war projects. Even then, long delays are in prospect. The government is urging full use of existing machinery. Listed here are "machinery opportunities" immediately available here on the Pacific Coast.

FREQUENCY CHANGER
5 KVA U. S. 60 Cycle to 120 Cycle
PLATING UNIT—M. G. SET
300A/150A 7½-15 Volt Ideal

TRANSFORMERS
1 25 KVA 440/110/220 Volt, 1 Phase
Westinghouse
2 15 KVA 440/110/220 Volt, 1 Phase
General Electric

SLIP RING MOTORS
75 HP 900 RPM 440-Volt Type HV
Fairbanks Morse
50 HP 900 RPM 440-Volt Type MT
General Electric
1½ HP 1200 RPM 220-Volt Type MT
General Electric

LITTLEJOHN-REULAND CORPORATION
Rewinding 2655 Santa Fe Avenue Repairing
JEfferson 5255 Los Angeles, Calif. JEfferson 5255

MACHINERY SALE

MOTORS
1—260 H.P. Synchronous G.E. 225 RPM, 2200 volts, 210 KVA.
2—250 H.P. Westinghouse, Type CS, 290 RPM, 2200 volts.
1—200 H.P. Slip Ring G.E. 600 RPM, 440 volt motor.
1—200 H.P. G.E. Type I, 600 RPM, 440 volts.
1—200 H.P. G.E. 1800 RPM, 440 volt motor.
1—150 H.P. Westinghouse, Type CS, 1800 RPM, 440 volts.
1—100 H.P., Slip Ring, G.E., 720 RPM, 440 volts.
1—62½-ft. 25½-inch Double Leather Belt.
1—60 H.P. G.E. Type I, 1800 RPM, 440 volts.
1—50 H.P. Vertical Fairbanks Morse, 1200 RPM, 220 volts, solid shaft.
1—35 H.P. Crocker Wheeler, 1200 RPM, 220 volts.
1—25 H.P. G.E. Type I, 600 RPM, 220 volt motor.
1—10 to 30 H.P. Slip Ring, Westinghouse, Type MW, 860 RPM, 440 volts.

GENERATORS, BLOWERS, WATER PUMPS
1—600 Amp, 7500 volt, Westinghouse Type F3 oil circuit breaker.
1—300 H.P. Triumph Water Wheel with governor, 50 ft. head.
1—200 KW, Westinghouse Alternating Current Generator, 900 RPM, 440 volts, 60 cycle, 3 phase.
1—150 H.P. Fairbanks Morse, Type B, 720 RPM, 440 volts.
1—150 H.P. Westinghouse Type CS, 720 RPM, 2200 volts.
1—No. 70 ILG Blower, 17,430 CFM, direct to 6 H.P. 340 RPM, 3 phase motor.
2—75 KVA Transformers, G.E. Type H, 6600 to 120/240/480 volts, 60 cycle.
1—50 H.P. Single Drum Mine Hoist.
1—45 K.W. Alternating Current Generator, U.S. Electric, 1200 RPM, 440 volts, 3 phase.

RELIABLE ELECTRIC WORKS
1831 Q STREET SACRAMENTO, CALIF.

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Used and Rebuilt Oil-Cooled Transformers in Stock

Single Phase, 50 or 60 Cycle 2200 to 110/220 Volts
3—1 K. V. A. Westinghouse
3—1½ K. V. A. Westinghouse
2—2 K. V. A. Westinghouse
4—3 K. V. A. Westinghouse
4—5 K. V. A. Westinghouse
3—10 K. V. A. General Electric

Single Phase, 50 or 60 Cycle 2200 to 440/220 Volts
1—7½ K. V. A. Westinghouse
3—10 K. V. A. General Electric

Single Phase, 50 or 60 Cycle 440 to 220/110 Volts
4—1½ K. V. A. Westinghouse
8—3 K. V. A. Westinghouse
12—5 K. V. A. Westinghouse
4—7½ K. V. A. Westinghouse
3—10 K. V. A. Westinghouse
1—37½ K. V. A. Westinghouse

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WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

Turco Products, Inc., Los Angeles, have added F. Carl Hirdler, Jr., to their laboratory staff. A graduate of the University of Oklahoma, he received his B.S. in chemical engineering when only 28 years old. For the past two years, he worked as a processing engineer at Lockheed Aircraft. Hirdler will conduct personally the Turco School in Aircraft Materials and Processes, which course is being offered for the education and assistance of aircraft maintenance men in meeting war production problems.

Sundstrand Machine Tool Co., Rockford, Ill., have appointed Arthur Burgan as sales engineer for the Pacific Coast territory. He has been connected with the machine tool industry for over twenty years. Prior to his present position, he was assistant chief for American Broach and Machine Co., a subsidiary of Sundstrand. His business address will be 3838 Santa Fe Ave., Los Angeles.

William S. Long has been appointed to the newly-created position of operations manager for the United States Rubber Company in Los Angeles. The position was prompted by the important war production assignments to the Los Angeles plant and the importance of the Los Angeles area in war production generally.

California Kinetic Company are moving from 926 Natoma St., San Francisco, to larger quarters at 808 Parker St., Berkeley, Calif., according to an announcement by Fred Heyden, head of the company. They are supply contractors and engineers for the Pan American oil fired water heaters, Sellers Immersion-O-Matick gas fired water heaters, boilers, tanks, oil-burners and furnaces.

The Detroit Rex Products Co., metal-cleaning engineers, have moved their Los Angeles office to new and larger quarters at 1506 Santa Fe Avenue. S. B. Crooks is manager of the Pacific region.

Atlas Powder Co. has promoted Ralph K. Gottshall, manager of their Pacific Northwest district, to director of sales of the explosives department with headquarters in Wilmington, Del. William T. Mahood, formerly connected with the contractors' section of the company, will take over Gottshall's position in Seattle.

The Lundwick & Brown Floor Co., 2412 Aurora Ave., Seattle, have moved to larger and more centrally located quarters at 710 Valley St. They specialize in laying, sanding and finishing flooring.

Aircraft Specialties Co., Los Angeles, have appointed Dr. G. Potapenko to the position of Technical Director. The Doctor, an associate professor of Physics at the California Institute of Technology, will continue teaching along with his new work.

Pacific Book Manifolding Co., Los Angeles, has W. G. "Jerry" Stone back as district manager. He had been working in Washington.

Severance Tool, Inc., Saginaw, Mich., have established an operating plant in Los Angeles. They will handle regrinding, sales and service operations on Severance "Midget Milling Cutters" and other high-speed steel cutting tools.

Factory Manager Available

Experienced in the manufacture of Radios, Refrigerators, Structural Steel, Sheet Metal Products, Steel Sash, Porcelain Enamel Sinks and Cabinets, Tools, Dies, and other Products.

Am an American, 50 yrs. of age, in good health, with a good practical and technical training. Have set up complete shops, with equipment, machinery, toolings, cost system, engineering, foreman personnel, time study, production planning and scheduling and operated same. Have handled as high as 3500 employees successfully.

Can furnish best of references as to my character and ability. Salary $7500. Address Box 305, Western Industry, 503 Market St., San Francisco, California.

Bushnell Controls and Equipment Co., 117 West Ninth St., Los Angeles, have announced the opening of a new office in San Francisco, located at 220 Bush Street. L. T. Slauson will be in charge. They handle lines manufactured by: Aldrich Pump Co., Jerguson Gage and Valve Co., R-S Products Co., Clapp Instrument Co. and Industrial Pyrometer and Supply Co.

Frank McBath, president and manager of Columbia Equipment Co., Portland, was the only man from the Pacific Coast to be elected to office at the 24th annual meeting of the Associated Equipment Distributors held recently in Chicago. He is the third vice-president of the national association.

San Francisco Iron Foundry is the new operating name of the San Francisco Stove Works located at 260 Townsend Street, San Francisco. E. M. Hansen is president of the company.

Lectures on Heat Treating

Golden Gate Chapter of the American Society for Metals announces the plans of a spring lecture course on heat treating to be held in the early part of May. Roy G. Roshong, metallurgical engineer, a member of the firm of Harvey S. Pardee & Associates, consulting engineers of Chicago, will come West to conduct this course.

The course will be free to members of the society. Non-members may secure further information from either H. E. Krayenbuhl, Oliver United Filters, Inc., of Oakland, or John Bermingham, E. F. Houghton & Co., of San Francisco, secretary and chairman, respectively, of the chapter.

Johnston

STAINLESS STEEL WELDING RODS

A. P. Johnston

1845 EAST 57th ST. LOS ANGELES, CALIF.

TELEPHONE KIMBALL 2[illegible]

YOURS FOR THE ASKING

1216

Counting Machines — Bulletin No. 100 gives in compact form details on the Productimeter line of standard counting and measuring machines. Designed for convenience of all department heads interested in production, time study, cost accounting and research in industrial plants, and will be of valuable help in determining the Productimeter's need for industrial counting and measuring uses. Contains many illustrations. *Durant Manufacturing Co., 1919 No. Buffum St., Milwaukee, Wisc.*

1217

Wrapping Machines — "How to Keep Your Wrapping Machine on the Job for the Duration" is the title of this pamphlet which points out that the maintenance methods outlined, based on long experience of service men in the field, will do much to prevent costly delays and expensive repairs. Among the suggestions listed for keeping machines working at peak efficiency are proper lubrication, cleaning methods, adjustments, periodic check-ups and ways of avoiding delays in obtaining repair parts. *Package Machinery Co., 152 West 42nd St., New York, N. Y.*

1218

Leather V Belting — Firmoke, a new type adjustable V belting with Clark's patented ball bearing fasteners. According to the manufacturer, has the following advantages: Can be made up to odd lengths on the job; stretch can be taken out; piece can be inserted readily in the old, so it is no longer necessary to waste the entire old belt; can be put on the inaccessible places without stripping the shaft, machinery or bearings; waterproof, oil resisting. *The J. J. Ross Mill Furnishing Co., 2208 First Ave., So., Seattle, Wash.*

1219

Valves — An illustrated manual of globe and check valves, divided into six sections identified by a tab. Headings include: Bronze globe valves, forged steel globe valves, balanced stop valves, bronze check valves, forged steel check valves and cast steel check valves. Included are pressure ratings for the unit shown along with its dimensions and prices. Bulletin A-4 is printed in two colors and contains 36 pages. *Distributor Products Div., Watson-Stillman Co., Roselle, N. J.*

1220

Accident Prevention — Catalog No. 50 contains a ten-page index and 134 pages describing safety equipment. Some of the principal subjects covered are face and head protection, women's protective apparel, vapor proof magnifying lights and other interesting subjects. *The Boyer-Campbell Co., 6540 Antoine, Detroit, Mich.*

1221

Tool Care — "Don't let this happen" . . . is the heading of the first of a series of posters designed to teach workers the importance of tool care, and stress the relationship of proper care of tools to the continuity of job. *Genesee Tool Co., Fenton, Mich.*

1222

Oxygen Conservation — A two-color, 17-inch by 22-inch poster on the conservation of oxygen is available from *Air Reduction, 60 East 42nd St., New York, N. Y.*

1223

Construction — "The Story of Ziebarth Construction" is a 24-page booklet done in colors. It depicts the various unusual projects which were undertaken and completed by this organization. It describes the electrification and building of high-tension, steel-tower transmission lines running out of Boulder Dam to various pumping plants which bring water to Southern California; it takes in a dozen tasks done for the Bonneville Power Administration, and other big hydro-electric projects. Of prime interest is the electrical installation job done at Basic Magnesium, Inc., Las Vegas, Nev. *Fritz Ziebarth, 860 W. Esther St., Long Beach, Calif.*

You owe it to yourself to keep posted—only the efficient business survives under the strain and pressure of the war effort. Literature listed in these columns may be just the answer to your need for greater production, substitute materials or knowledge of how to care for your equipment. Just drop a note to Western Industry, 503 Market St., San Francisco, and copies will be forwarded to you. If you do not use business letterheads, please name your company affiliation.

1224

Power Brushes — Folder describes versatility of rotary wire and Tampico fibre power brushes. Points out that the Tampico section brushing wheels are ideal for removing tool marks and scratches from highly stressed parts of machines, such as connecting rods or spline shafts; the Master wheel is most widely used because it can do so many different jobs; and the disc center wire wheel sections which are designed for safe, fast and efficient operation of modern high-speed equipment and portable tools where extra-heavy brushing is required. *The Osborn Mfg. Co., 5401 Hamilton Ave., Cleveland, Ohio.*

1225

Handling Equipment — Catalog contains the most popular models of factory trucks and trailers, both all steel and wood platform numbers. End, side and three-way-entrance dumps are included. A four-page insert is devoted to heavy-duty all-steel caster specifications, diagrams and illustrations. *Rose Mfg. Co., 1240 Strathmoor, Detroit, Mich.*

1226

Shift-O-Graph — A perpetual work-shift schedule for companies who operate their equipment as continuous as possible. Four plans are given. Size 10 inches by 10 inches, colored and has 1943 calendar. 1944 calendar will be furnished also if requested. *George S. May Co., 2600 No. Shore Ave., Chicago, Ill.*

1227

Carton Stitchers — A six-page folder describes in detail the various standard and special types of carton stitchers available to shippers of war products. Specifications are given, illustrations depict special features and various uses are shown. *Acme Steel Co., 432 Bryant St., San Francisco, Calif.*

1228

Bearing Lubrication — Bulletin No. 143 gives information about the installation, care and lubrication of ball and roller bearings. Four-page leaflet is well illustrated. *Lubriplate Div., Fiske Brothers Refining Co., 129 Lockwood St., Newark, N. J.*

1229

Coolant Pumps — Adaptable to almost any machine tool. Catalog C43 contains information and motor data on these pumps, giving the pumping capacities. Actual job illustrations are shown. *Atlas Press Co., Dept. 7, Kalamazoo, Mich.*

1230

Label Ideas — Catalog contains 582 label ideas for time and labor saving suggestions which can be adapted by practically every type of organization. *Ever Ready Label Corp., 141 East 25th St., New York, N. Y.*

ELIMINATE HOT BEARINGS
and OTHER LUBRICATING PROBLEMS
with **MOTOR MICA**
TRADE MARK REG. U. S. PAT. OFF

★ Motor Mica Anti-Friction Compound fills tiny pores and scratches on all frictional parts. COOLS HOT BEARINGS. Saves vital time and costly repairs, makes machines run better, steadier, longer. A little goes a long way.

PUT MOTOR MICA ON YOUR TOUGHEST JOB!

Select the most perplexing lubrication problem in your plant. Then, apply Motor Mica in accordance with instructions. You'll be amazed at the result, and like thousands of other leading industrialists, your plant will never again be without MOTOR MICA.

Order now . . . We'll ship same day . . .!

Packed in 5-10-25-50-100 lb. Containers

USED IN AMERICA'S BIG WAR WORK PLANTS for

- METAL WORKING
- STAMPING
- DRAWING
- TURNING
- DRILLING
- MILLING
- THREADING
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- BORING
- DIE CASTING
- SCREW MACHINES
- COUNTLESS OTHER OPERATIONS

Manufactured and sold only by

ORDER DIRECT FOR IMMEDIATE DELIVERY

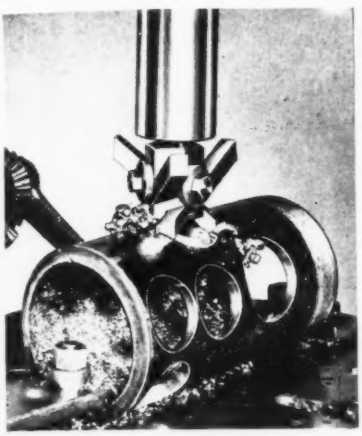
SCIENTIFIC LUBRICANTS CO.

3462 NORTH CLARK ST. CHICAGO, ILLINOIS

THE SHOWCASE

Protective Mask—A waterproof, protective and abrasion-resistant mask for plastic glass bomber noses and windshields. Simply sprays on with an ordinary paint spray gun, and peels off in a sheet when no longer needed. Semi-cloudy appearance while applying is an aid to quick and even application, yet it dries clear and transparent. *Adhere, Inc., 1220 Maple Ave., Los Angeles, Calif.*

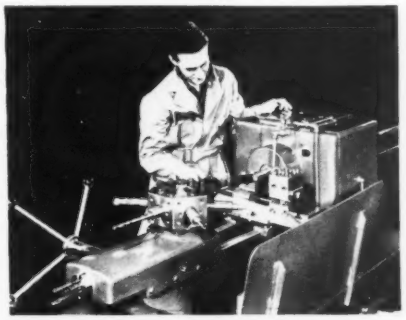
Hole Cutters—Designed for use in electric drills, pneumatic motors, drill presses, lathes, milling machines—wherever straight shank tools can be used. Will



cut clean holes ¾ inch to 4¼ inches in diameter in metals, plastics, hard fibers, pressboard or wood in thin sheets or ¾ inch thick plates. *Robert H. Clark Co., 3424 Sunset Blvd., Los Angeles, Calif.*

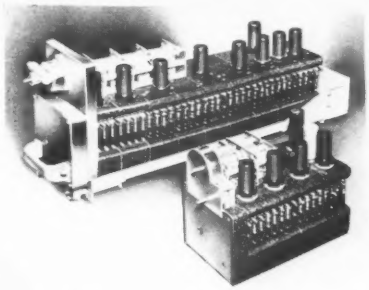
Grip Gloves—Designed on a small fitting pattern for women, the gauntlet is

made of sturdy chrome tanned leather, reinforced on all wearing surfaces with steel ribbons, placed diagonally for the most protection against cuts and snags. All seams are sewed closed with steel thread. The thumb-wearing surface and junction of palm and thumb are reinforced with extra leather and steel ribbons for added protection and wear. *Industrial Gloves Co., Danville, Ill.*



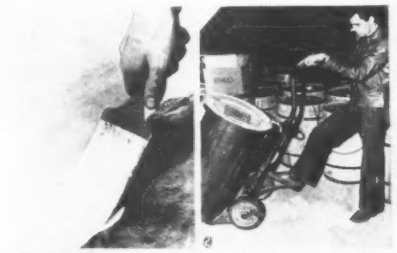
Turret Lathe—Automatic indexing replaces manual control on this machine. It has a capacity of 1½ inches for cutting-off, boring, tapping along with many other operations, and is simplified in design and construction to meet requirements for low cost and easy operation. Widely used to release more costly machines and highly skilled operators from a wide range of bar and chucking operations. *The Oster Mfg. Co., Cleveland, Ohio.*

Radio Assembly—Unitized construction radio receivers feature a radically new method of assembling radio communication receivers from three basic cells, using only one type of tube in the entire circuit regardless of its complexity, according to the manufacturer. Differing from conventional aircraft and highly portable military types, these receivers are an assembly of four or more cells, each cell being a complete element of radio circuit. Three types of cells are produced in quantities—R.F., I.F., and Audio amplification units, which eliminate approximately 95 per cent of the hook-up wire usually required in a receiver, and permits the use of one type of tube in place of six or more different types usually



required. *Electronics Div., Harvey Machine Co., 6200 Avalon Blvd., Los Angeles.*

Floor Coating—For removing accumulated spillage and overspray from paint room floors. A white, thick liquid which looks like and is handled like paint. Applied to floor with kalsomine brush, and dries to a hard, durable, nonskid surface which cannot be injured by ordinary foot or truck traffic. When accumulation of paint on coating is such as to require its



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SHOWCASE—

Concluded from preceding page

removal, "Turco Duramask" can be dissolved with water, and paint film mopped away. *Turco Products, Inc., 6135 South Central Ave., Los Angeles, Calif.*

Mechanized Sweeper—For small and medium-sized plants, this sweeper can get into close spaces, and in open area, cleans

at the rate of 16,000 square feet per hour, according to the manufacturer. Works like a carpet sweeper — walk along as you sweep. *Moto Mower Co., 4600 Woodward, Detroit, Mich.*

Rotary Table —Has a worm gear ratio of 60 to 1, giving a six degree rotation for

one turn of the crank, making faster rotation possible. This ratio is versatile for tool making, layout, inspection and production. Backlash has been eliminated by an adjustment between the worm and gear. Easy reading is assured with a beveled dial accurately cut and graduated to tenths of a degree. Six inches around, it is small enough to get into usually inaccessible places. *Duro Manufacturing Co., 800 East 61st St., Los Angeles, Calif.*

Chemical Powder —Eliminates damp ending damage caused by humidity, condensation, rust, mold, mildew, warping and prevents musty odors. Used with a unit which has a sturdy, specially treated wood tripod under which Dri-Air powder can be suspended in a mesh bag. Drippings from moisture absorbed by the powder are collected in bucket or pan. *Tamms Silica Co., 228 No. La Salle St., Chicago, Ill.*

Toting Tray —Made of a special impregnated fiber board which is tough, rigid and resilient, and has a high resistance to water and oil so that it gives lasting service as a receptacle for greasy castings and ma-

chined parts. Handles metal parts without the usual metallic clang which results in nerve-wracking din. Material does not dent, and container always is in shape for easy stacking. *Arvey Corp., 3462 No. Kimball Ave., Chicago, Ill.*

Fire Blanket —A specially-knit, flexible blanket that is 100 per cent flame-proof, regardless of the intensity of the fire. Widely accepted in first-aid practices for saving the life of a person whose clothing has become ignited by wrapping the victim in a blanket and extinguishing the flame by smothering it. *C. Walker Jones Co., East Germantown, Philadelphia, Penn.*

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*"Speed will count. Lost ground can always be regained...time never."**

The wisdom of these words cannot be refuted. During war, as at no other time, speed is of the essence . . but, dependability and economy are close companions. Consider the shipping container charged with the responsibility of carrying valuable cargo under the toughest of transportation conditions. It must be strong so as to provide maximum protection. It must be light in weight so as to save tonnage. It must be compact so as to save space. It must be carefully designed so as to save critical materials. It must be easy to handle so as to save time in packing, shipping and unpacking.

Cabco Allbound Boxes and Crates fit these conditions perfectly. Where else can you find ready made containers such as these: factory made in one piece complete; require no hammer, no nails to set them up; come to you flat and require minimum storage space; made of light weight wood veneer to save weight; "Allbound" with steel wires and reinforced at the ends for great strength; wire loop fasteners for utmost speed in setting, packing and unpacking; specially designed to fit the exact requirements of your product whether it may be vegetables or munitions, canned goods or bolts and nuts. Allbound Boxes and Crates will serve you.

CABCO

** Franklin D. Roosevelt to Congress – January 6, 1942*

ALLBOUND CRATES and boxes bring 'em through

We are doing our level best to maintain our high standard of service to old customers but right now Uncle Sam comes first. Please cooperate with us and we'll put every available ounce of our energy toward the fulfillment of your needs.

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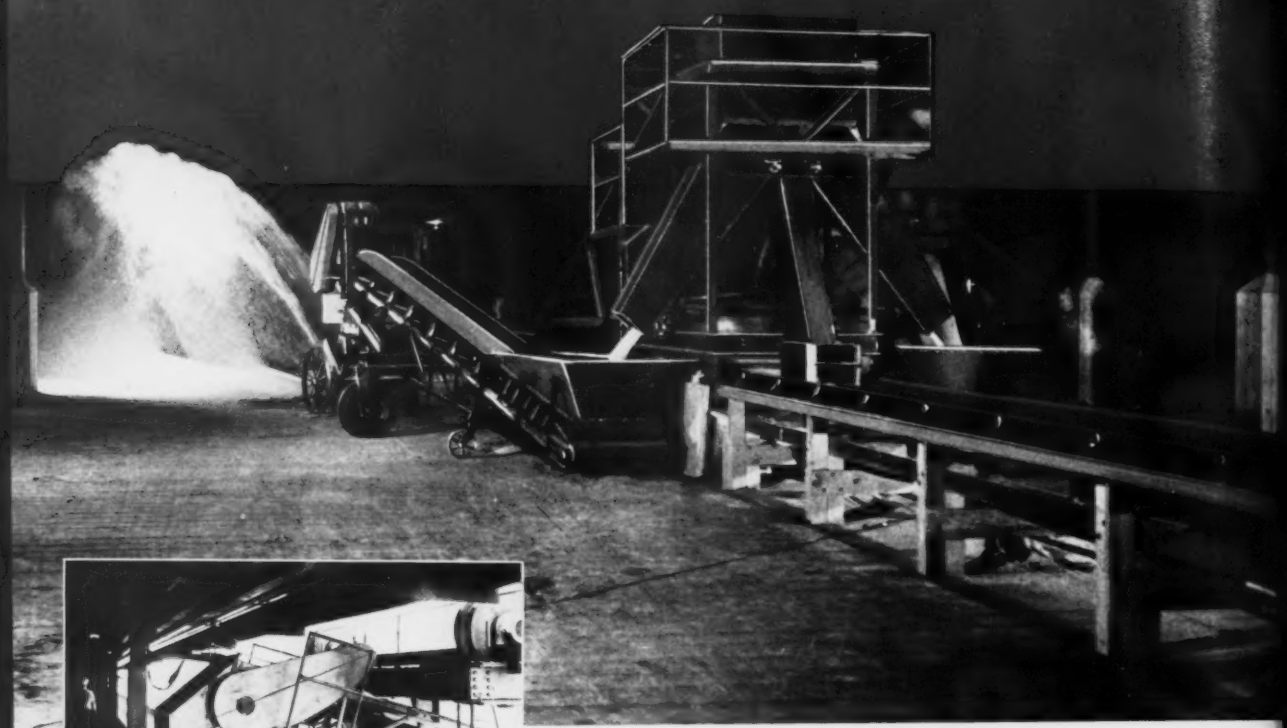
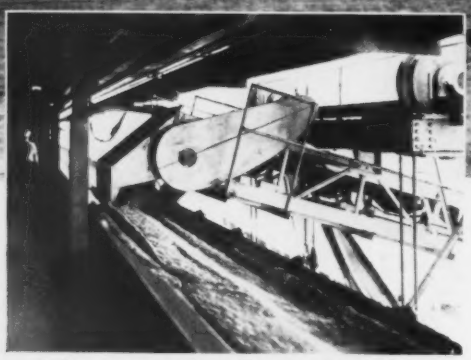
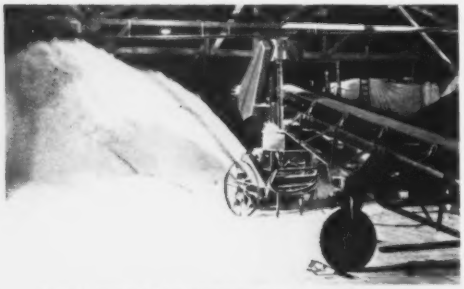
How to Cut Handling Time!





● Raw sugar, coming off marine leg, is being received on S-A main conveyor belt, which runs the length of the warehouse.



● S-A sugar pilers throwing raw sugar at the rate of 500 tons per hour. The sugar is thrown a distance of 80 feet.

...HOW ONE COMPANY SPEEDS WORK, SAVES LABOR BY S-A BULK HANDLING

Pictured above is the STEPHENS-ADAMSON bulk handling system which revolutionized the former bag-handling methods of the sugar industry. The S-A conveyor carries the raw sugar from the ship's side to the tripper at the rate of 500 tons per hour, from where it is either delivered direct to the melting bin or to bulk storage via S-A Sinden Loaders and sugar pilers. The savings effected by the S-A system include millions of scarce and costly bags and many man hours.

There are countless other examples where outstanding S-A installations have solved handling problems for expanding western concerns by the introduction of bulk handling methods. Costs figured over years of operation prove the outstanding economy of moving tonnage by this method with low-maintenance S-A equipment.

The long experience of individual S-A engineers in being the first with new ideas insures our ability to handle your job at the lowest possible cost. May we submit our recommendations on your next requirement without obligation?

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